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T H E



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THE
ART
OF
DRAWING,
AND
Painting in *Water-Colours*, &c.

PART I.

The Principles, &c. of DRAWING.

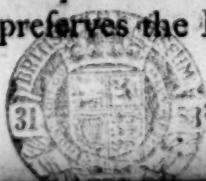
CHAP. I.

Of DRAWING in General.

RAWING is the Art of representing the Appearances of Objects, by Imitation ; or expressing, by Lines and Shades, the Form or Appearance of any Thing in Nature or Art ; the Copying of another Draught, or any Design conceived in the Mind ; and all this without the Assistance of mathematical Rules.

The Art of Drawing, being an Accomplishment not more elegant, agreeable and ornamental than useful, is, therefore, by no Means to be neglected in the Education of Youth, wherein any Genius or Inclination that Way is discovered. Besides its being, of all Arts, the most universally admired and esteemed, there are few other Arts or Professions to which it is not assisting: its great Use is not confined to Painters, Engravers, Gardeners, Embroiderers, Weavers, and many others concerned in Designing; but the Mathematician, Engineer, Architect and Navigator daily practise it. All Designs and Models are executed in it; its Use appears in every Station of Life, and it is equally admired by Children and by Adults.

To be able, on the Spot, to take the Sketch of a fine Building, or a beautiful Prospect, of any curious Production of Art, or uncommon Appearance in Nature, is not only a very desirable Accomplishment, but a very agreeable Amusement. Rocks, Mountains, Fields, Woods, Rivers, Cataracts, Cities, Towns, Castles, Houses, Fortifications, Ruins, whatever else may present itself to View, on our Journeys or Travels, in our own or in foreign Countries, may be thus brought Home, and preserved for our future Use, either in Business or Conversation. This Art transmits to our View Things that are long since past, or would otherwise perish; represents to us the Deeds of People and Nations, for many Ages dead, and preserves the Features and Resemblances



semblances of Ancestors, or other valuable Persons, for many Generations. It is, therefore, no Wonder that an Attainment so universally useful and admired should be distinguished as one of the highest Embellishments of human Life, and be patronised and cultivated by all the generous and ingenious Part of Mankind.

CHAP. II.

Of the proper Materials for DRAWING.

THE Materials required in Drawing, are black Lead Pencils; Crayons of black, white or red Chalk; Crow-Quill Pens; a Rule and Compasses; Camel's Hair Pencils, and Indian Ink.

Accustom yourself to hold your Pencil further from the Point than you do in Writing, which will give you a better Command of it, and contribute to render your Strokes more free and bold. The Use of your Pencil is to draw the first Sketches or Out-lines of your Piece; as any Stroke or Line that is amiss, may in this be more easily rubbed out than in any other Thing; and when you have made your Sketch as correct as you can with the Pencil, you may then draw carefully the best Out-line you have got, with your Crow-Quill Pen and Ink. The Ink made use of for this Purpose, must not be the common, but Indian Ink; being much softer than the other, and not running; and, by mixing it with

Water, it may be made to any degree of Strength, and may be used in a Pen like common Ink. After using the Ink, you may wipe out the Pencil-Lines, by rubbing the Piece gently with the Crumb of stale Bread. Having thus got your Out-line discharged, your next Work is to shade your Piece properly, as you shall be directed below, either by drawing fine Strokes with your Pen, where it requires to be shaded, or by washing it with the Hair Pencil and the Indian Ink. As to the Rule and Compasses, they are never, or rarely, to be used, except in measuring the Proportions of your Figures, after you have drawn them, to prove whether they are right or not; or in Houses, Fortifications and other Pieces of Architecture.

Red Lead and red or black Chalk are used in the same Manner as black Lead. White Chalk and Tobacco-Pipe Clay are used in heightening or giving strong Lights, and in drawing on coloured Paper. Pastils or Crayons are any Colours, mixed with Tobacco-Pipe Clay, which, while soft, and in the Consistency of a Paste, is rolled up in Pieces, about the thickness of a Quill, and two or three Inches in Length, and then dried; they are generally used on coloured Paper; and the Colours are rubbed and wrought one into another, in such a Manner that no Strokes appear, but the whole looks as if it was done with a Brush.

C H A P. III.

Of LIGHT and SHADE.

IT is the artful Management of Light and Shade that gives the Appearance of Substance, Roundness and Distance, to whatever Bodies are represented by Drawing. Draw a Circle on a Piece of Paper; fill it up with any even Colour, and it will appear to be a Body with a round Circumference and flat Sides: But by colouring it stronger in the Middle, and causing it gradually to weaken towards the Circumference, it will receive a convex Appearance like that of a Ball or Globe: Wherever the Vivacity of Colour is strongest, that Part of the Object catches the Sight first, and appears nearest to it: whereas its Weakness and Goings off are more and more broken and faint, and seem to fly farther off from the Sight. In rounding the Parts of any Object, the Extremities in turning must lose themselves insensibly and confusedly, without precipitating the Light all of a sudden into the Shadows, or the Shadows into the Light, but the Passage of the one into the other must be common and imperceptible; that is, by Degrees of Light into Shadow, and Shadow into Light. Objects that are painted light must have a sufficient Breadth of Shadow to sustain them; and dark Bodies must have a sudden Light behind, to detach them from the Ground, or from those Objects that

are placed behind them; otherwise they will appear confusedly, as sticking upon each other; whereas the Opposition of Shade to a light Object, and of Light to a dark one, gives a Projection, and separates them from other Bodies.

There should be a Balance preserved between the Lights and Shadows; a broad Light ought not to be introduced into a Draught without a large Shadow. The nearer any Object is to the Eye, it is seen so much the stronger and plainer; the Sight is weakened by Distances, and the more remote any Object is, it is seen in a more imperfect manner: Therefore, those Objects which are placed foremost to the View, ought to be more finished than those that are cast behind; and they should have such a relative Dominion over each other, that as one Object, by its Heightnings, causes others to retire more backwards, so the same Object must be chased and made to appear farther from the Sight, than others which are more strongly illuminated.

It is not sufficient that remote Objects be only coloured in a more faint and languid Manner; but, according to their Distance, the Parts must appear more or less confused; the Eye not being able to discover minutely what is far separated from it. Pure and unmixed White either draws an Object nearer, or carries it off to a greater Distance. If it be accompanied with Black, the Opposition of Light and Dark renders the Object more sensible, and brings it
nearer

nearer to the advanced Part ; but pure White, being the lightest of Colours, unless it be forced forwards, and supported by Black, will fly off to the remotest View. As for pure Black, it is the heaviest, most earthy, and most sensible of all Colours, and brings the Objects nearer to the Sight : It must be placed in Masses, be insensibly confus'd, and have its proper Responses.

The Representations of Bodies give them always such Lights as are most proper and convenient to their supposed Situations. If the Objects are in the Fields, or open Air, and the Sun not visible, or obscured by Clouds, you must then introduce almost an universal Light, though not warm and strong, and your Shades must be faint : but when the Sun is conspicuous, and shines in its full Lustre, then the Light must be very strong and bold, and the Shadows very dark. If the Objects you represent be supposed in a Room, a little, but not very much, illuminated, and you survey it from without, and stand on a Level with the Light that strikes upon it, the Shadows of that Figure must be very soft, whereby the Figure itself will appear beautiful to the Eye ; and will, notwithstanding the Softness of the Shadow, seem as imboss'd, and come boldly out. A small Light illuminating a Body occasions the Shadows on the dark Side to be large, and their Extremities to be very bold. On the other Hand, a Light makes the Shadows

dows on the darker Side to be more distinct and more soft in their Limitations.

Reflection is to be used in delineating glittering or shining Bodies, as Glass, Pearls, Silver, &c. Let the Cause of the Reflection, be it more or less, be seen in the Thing itself. Place all your Lights one Way through the whole Work ; and if the Light falls sideways on the Picture, the other Side, which is the farthest from the Light, must be made the darkest. That Part of the Body must be made lightest which has the Light most opposite to it : if the Light be placed above the Head, then the Top of the Head must be made lightest ; the Shoulder must receive the next greater Degree of Light ; and thus must you continue to shade, losing the Light by Degrees. By how much one Part of the Body projects more than another, it must by so much be made the lighter : and, on the contrary, those Parts that bend inward must be made so much the darker. Two equal Lights must never be made in one and the same Picture ; the greater is to strike forcibly into the Middle, and with greatest Lustre on those Parts of the Design where the principal Figures and Strength of the Action seem to lie, diminishing it gradually as it approaches nearest the Extremities of the Piece.

C H A P. IV.

General Rules for DRAWING.

BEGIN with plain geometrical Figures, as Lines, Angles, Triangles, Polygons, Arches, Circles, Ovals, Cones, Cylinders, and the like, being the Foundations of all other Proportions. The Circle is of use in the several orbicular Forms, as the Sun, Moon, Globes, &c. The Oval, in giving a just Proportion to the Face and Mouth; and the Square confines a Picture you are to copy, &c. The Triangle is of use in drawing a side or half Face; Angles and Arches, in Perspective; and the Polygon in Ground-plats, Fortifications, &c. The Cone, in Spires, Steeples, Tops of Towers, &c. The Cylinder, in Columns, Pillars, &c.

Having brought your Hand to be fit and ready in general Proportions, accustom yourself to give every Object its due Shades, according to its Concavity or Convexity, and to elevate or depress the same, as the Object appears either nearer or farther off the Light. Before you begin to work, view your Original with close Attention, divide it in your mind into several Parts; observe the Length, the Breadth, and the Similitude of each Part; consider their Proportion to each other, and to the Whole; the Distances from one Part to the other, and what Parts lie opposite to each other.

After

After you have done your Copy, view it afresh, by comparing it with the Original, for the discovering and amending of Faults, as it will not only serve to perfect you in that particular Draught, but will improve your Knowledge of Lines and Proportions in general, and in Time enable you for the nearest Imitations. The Outlines must be drawn in a gliding Manner, large and smooth, which will give them the Resemblance of Life and Motion. You must preserve in your Draught a strong Resemblance between the Parts and the Whole; every Member ought to be made to agree; strong Limbs have no Relation to a consumptive Body, or decayed old Age; and the Eyes, Legs, Hands and Feet, should be exactly paired.

Having good Copies to draw after, learn to reduce them to other Proportions, either larger or smaller, and this by frequent Practice. In drawing Fruits, as Apples, Pears, Cherries, &c. with their Leaves, Herbs, Trees, &c. of different Kinds: As also in the Imitation of Beasts, Fowls, Fishes, &c. it is requisite not only to be perfect in laying down the exact Proportions, but, before you proceed to the shadowing and trimming your Work, to be well acquainted in the general or outward Lines; and this is still more necessary in imitating the Body of a Man with all its Lineaments, as Head, Nose, Eyes, Ears, Cheeks, Arms and Shadows; as also in the Drapery, or Imita-

Imitation of the Clothing, and the artificial setting off the outward Coverings, Habits and Ornaments of the Body, in their natural and proper Folds.

CH A P. V.

Particular Directions for DRAWING.

IN drawing after a Picture or Print, you must take Care to place it in such a Light that the Gloss of the Colours may not interrupt your View, but so that the Light and your Eye may fall equally and obliquely upon the Piece. To this End you are to consider from what Point, and in what Direction, the Light falls upon the Objects, according to which Direction let all your Lights and Shades be placed throughout the Work. That Part of the Object must be lightest which has the Light most directly opposite to it; if the Light falls sideways on your Picture, you must make that Side which is opposite to it lightest: and, on the contrary, that Side which is farthest from it darkest. Let the Piece be placed at such a Distance, that, upon opening your Eyes, you may view it all at once, and the larger the Picture is, it should be so much the more placed off at the greater Distance. But right before you, and a little reclined.

Draw all your Outlines at first very faint with a Coal, which may easily be rubbed out again with the Feathers of a Duck's Wing, or the Crumb of Bread;

Bread ; and these Outlines should be drawn true, and agreeable to the Pattern, before you begin to shadow any Part of the Object. The Outlines next the Light should be drawn more faint ; and when you have drawn one Feature, it should be a Direction for you, in some Measure, to draw another, by observing, with your Eye, the Distance from that to the next Feature, making a full Mark at the Place with your Coal ; then draw it, and so to the next, till you have drawn the whole Figure.

Then observe the Middle of the Picture you would copy, and touch upon the Paper with the Point of your Coal ; afterwards observe the more conspicuous and uppermost Figures, if there are more than one, which you are to touch lightly in their proper Places. Thus running over the whole Draught, you will see, as it were, the Skeleton of the Piece you are to draw.

Having made out these Sketches, view them diligently, to see if they answer your Pattern or not ; for the Gestures of the Life ought to shew themselves eminently in the first and rudest Draught of the Piece ; correct and amend what ever you perceive amiss ; adding and diminishing as it varies from the Pattern, by which Means it will be brought nearer and nearer to the Life.

Observe the Distance of one Limb, Joint or Muscle, from another, and the same in all other
Accidents

Accidents of the Figure; their Length, Breadth, Turnings, &c. Shadow next to the Light very faintly; and where you see bold and free Touches, be not timorous in expressing the same. In drawing a Head after the Life, or otherwise, take Care to place the Features exactly right upon the Cross-lines, whether it be a full Face or three-quarter Face. In foreshortening, you must make the Cross-lines to fly upwards, but where the Aspect is downwards, they must be made downwards in a circular manner.

Having drawn the Outlines true with a Coal, you are to proceed to trace the same Lines again with a Pen, Indian Ink, &c. drawing them with more Exactness; and by imitating all the Hatches, with their exact Distances one from another, their Crossings, Turnings and Windings, with more Boldness and Freedom, perfect your Design.

In drawing after a naked Body, all the Muscles are not to be so plainly expressed as in anatomical Figures; but that Side whose Parts are most apparent, and of Signification in the Performance of any Action, must be made to appear more or less, according to the Force of that Action.

In drawing young Persons, the Muscles must not appear manifestly so hard as in elder and full grown Persons; the same Thing is to be observed as to fat and fleshy Persons, and such as are very delicate and beautiful: and in Women scarce any
Muscles

Muscles at all are to be expressed, or but very little, unless it be in some very forcible Action; and then too they are to be represented very faintly; the like is also to be observed as to Children. The Motion of the whole Body must be considered in drawing of the Muscles; as in the rising and falling of the Arms, the Muscles of the Breast appear either more or less; the Hips do the like, according as they are bent outward or inward; and it is the same chiefly in the Shoulders, Sides and Neck, according to the several Actions of the Body.

The Breadth and Largeness of a Picture is also to be considered, it should be larger about the Legs and Garments, shewing itself slender above, by discovering one Shoulder and hiding the other, which is shortened by turning the Body. But sometimes the Figure is to be represented biggest in the upper Parts, by representing either or both the Shoulders, or both the Arms; shewing the one Leg, and hiding the other; or both of them after one Manner, at Discretion. Neither ought this to be observed only in the whole Body, but even in every Part, so that in the Legs, when a Muscle is raised outwards on the one Side, that which is directly on the contrary Side must be drawn in and hid, as it appears in the Life.

The Proportion of the Figure ought to be multiplied by Degrees, in Proportion of one to two, three, four, &c. for herein the chief Skill consists; the

the Diameter of the biggest Place between the
Knee and the Foot is double the least, and the
biggest Part of the Thigh triple.

CHAP. VI.

Of Drawing FACES.

IN drawing a Head it is usually divided into
four equal Parts. 1. From the Crown of
the Head to the Top of the Forehead. 2. From
the Top of the Forehead to the Eyebrows.
3. From the Eyebrows to the Bottom of the
Nose. 4. From thence to the Bottom of the
Chin. But this Proportion is not constant;
those Features, in different Men, being often
very different, as to Length and Shape. In a
well proportioned Face, however, they are near-
ly right.

To direct you, therefore, in forming a perfect
Face, your first Business is to draw a complete
Oval, as you see in Plate I. Figure 1, in the
Middle of which, from the Top to the Bottom,
draw a perpendicular Line; and through the Cen-
ter or Middle of this Line draw another, directly
across from one Side to the other of your Oval.
On these two Lines all the Features of the Face
are to be drawn, as follows. Divide your per-
pendicular-line into four equal Parts; the first
must be allotted to the Hair of the Head; the se-
cond is from the Top of the Forehead to the Top
of the Nose, between the Eyebrows; the third is
from

from thence to the Bottom of the Nose ; and the fourth includes the Lips and Chin : The Line across the perpendicular, or the Breadth of the Face, is always supposed to be the Length of five Eyes ; you must therefore divide it into five equal Parts, and place the Eyes upon it so as to leave exactly the Length of one Eye betwixt them. This is to be understood only of a full front Face ; for if it turns to either Side, then the Distances are to be lessened on that Side which turns from you, less or more, in Proportion to its turning. The Top of the Ear is to rise parallel to the Eyebrows, at the End of the Diameter or cross Line, and the Bottom of it must be equal to the Bottom of the Nose ; the Nostrils ought not to come out farther than the Corner of the Eye in any Face ; and the Middle of the Mouth must always be placed upon the perpendicular Line. The Mouth, when shut, is as large as an Eye.

The following is an ingenious Device, which, perhaps, may somewhat assist the young Practitioner, in forming the Face according to its different Turnings, and in placing the Features properly thereon. Procure a piece of smooth Wood, turned for the Purpose, in the Shape of an Egg, which is nearly the Shape of the human Head ; draw a Line lengthwise quite round it, as in the last Figure, and divide this Line into two equal Parts, by another Line drawn directly across it at right Angles. The Features being drawn on these two Lines, according to the Rules delivered

and above, will produce a Fore-right Face. Turn the Oval a small matter from the left Hand to the Right, and the Perpendicular will appear as if it were like a Bow, as you see in Fig. 2; upon which the particular Features are to be drawn, as in Fig. 3; always observing in what Manner the Nose projects beyond the Round of the Oval. The same must be observed, if you turn the Oval from the right Hand to the Left, as in Fig. 4; and if you incline the Oval downwards, and to the Right, the Lines of the Cross will appear, as in Fig. 5; and the Features drawn on them, as in Fig. 6. If you turn it upwards, reclining to the Left, the Lines of the Cross will appear as in Fig. 7. and a Face drawn on them as in Fig. 8. A great variety of Faces may be shewn by this Oval, according as you incline, recline, or turn it more or less.

But those Figures which come Sideways are to be drawn by Means of a Perpendicular, as in Fig. 9. upon which the Forehead, Nose, Mouth and Chin are to be drawn, as you see in Fig. 10.

It is to be observed, that if the Face be fat, the Cheeks will seem to swell; if lean, the Jaw-bones will stick out, and the Cheeks fall in; but if it be neither too fat nor too lean, it will be nearly round. Touch the Features lightly, where the Eyes, Nose, Mouth and Chin should stand: then begin to draw them more exactly, and so proceed till you have finished the Face; after which

draw

draw the Hair, Beard and Shadows about it. You are to consider all those chief Touches which give Life to a Face, and that discover the Disposition of the Mind : Thus the Mouth extended, and the Corners turning a little up, shews a smiling Countenance, &c. You must take Care that the Shadows be not made too dark, where they should be light, because afterwards they cannot be rendered more light ; and remember, that they are to be more faint and light, in a fair, than in a swarthy Complexion.

C H A P. VII.

*Of the MEASURES and PROPORTIONS of the
several Parts of the Body.*

THE Antients commonly allowed eight Heads to their Figures, though some of them had but seven ; however the Moderns ordinarily divide their Figure into ten Faces : That is, from the Crown of the Head to the Sole of the Foot, in the Manner following. From the Crown of the Head to the Forehead, is the third Part of the Face. The Face begins at the lowest Hairs which are upon the Forehead, and ends at the Bottom of the Chin. The Face is divided into three proportionable Parts ; the first contains the Forehead, the second the Nose, and the third the Mouth and Chin. From the Chin to the Pit between the Collar-bones are

two

two Lengths of a Nose. From the Pit betwixt the Collar-bones to the Bottom of the Breast, one Face. From the Bottom of the Breast to the Navel, one Face. From the Navel to the Genitals, one Face. From the Genitals to the upper Part of the Knee, two Faces: The Knee contains half a Face. From the lower Part of the Knee to the Ankle, two Faces. From the Ankle to the Sole of the Foot, half a Face.

A Man, when his Arms are stretched out, is, from the longest Finger of his right Hand to the longest of his left, as broad as he is long. From one Side of the Breasts to the other, two Faces. The Bone of the Arm, called *Humerus*, is the Length of two Faces, from the Shoulder to the Elbow. From the End of the Elbow to the Root of the little Finger, the Bone called *Cubitus*, with Part of the Hand, contain two Faces. From the Box of the Shoulder-blade to the Pit betwixt the Collar-bones, one Face. If you will be satisfied in the Measures of Breadth, from the Extremity of one Finger to the other, so that this Breadth should be equal to the Length of the Body, you must observe that the Boxes of the Elbows with the *Humerus*, and of the *Humerus* with the Shoulder-blade, bear the Proportions of half a Face, when the Arms are stretched out. The Sole of the Foot is the sixth Part of the Figure. The Thumb contains a Nose. The Inside of the Arm, from the Place where the Muscle disappears, which makes the Breast, called the pectoral Muscle to the Middle of the Arm, four
Noses.

Noses. From the Middle of the Arm to the Beginning of the Hand, five Noses. The longest Toe is a Nose long. The two utmost Parts of the Teats, and the Pit betwixt the Collar-bones of a Woman, make an equilateral Triangle.

For the Breadth of the Limbs no precise Measures can be given ; because the Measures themselves are changeable, according to the Quality of the Persons, and according to the Movement of the Muscles.

CHAP. VIII.

Of drawing the BODY at full Length.

FIRST make your Oval for the Head, and having divided it, according to the Instructions already given, draw a perpendicular Line from the Top of the Head to the Sole of the Foot, and Measure out eight Lengths of the Head. This Line is of special Use to direct you in placing the Figure upright ; and in the Action of the Posture, where it falls in, and where it swells out. One Head's Length from the Chin, you must draw the Breasts ; the third Measure reacheth to the Navel ; the fourth to the Privities ; the fifth to the Middle of the Thigh ; the sixth to the lower Part of the Knee ; the seventh to the lower Part of the Leg ; and the eighth to the Heel and sole of the Foot.

Observes,

Observe, in every Measure, what Touches here are of the Muscles. Draw that Leg first, in which the Body stands; then draw the other; and after that the Arms and Hands; but draw, at first, all the Parts very lightly, with a Coal only: because there is least trouble in altering and rubbing out the Coal. As for the Hands, they are twice as long as they are broad, and each of their Parts has its Length, Breadth and Thickness. The Nail upon the Finger is about half the Joint it is upon. The Length of the Foot is the sixth Part of the Height of a Person; and the Length is five eights more than the Breadth. The Length of the Face and Hands ought to be exactly equal, and makes but just the tenth Part of a Person's Height.

The Rules in drawing Children are as follow: Some make a Child to contain five Measures of the Head, *viz.* from the Top of the Head to the Privities, three, and in the Thighs and Legs two more; the Breadth between the Shoulders, the Length of a Head and a half; the Breadth of the Body above the Navel, the Length of one Head; and the Breadth of the upper Part of the Thigh, is the third Part of two Lengths of the Head; the Breadth of the Knee is just the Measure there is betwixt the Eyes and the Chin; the Small of the Leg, and the Brawn of the Arm, are of the Thickness of the Neck.

B

In

In general, let it be observed always to begin with the right Side of the Piece you are copying, for by so doing you will always have what is done before your Eyes, and the rest will follow more naturally, and with greater Ease ; whereas if you begin with the left Side, your Hand and Arm will cover what you do first, and deprive you of the Sight of it ; by which Means you will not be able to proceed with so much Ease, Pleasure or Certainty. As to the Order and Manner of your Proceeding, in drawing the Human Body, you must first sketch the Head ; then the Shoulders, in their exact Breadth ; then draw the Trunk of the Body, beginning with the Armpits (leaving the Arms till afterwards) and so down to the Hips on both Sides ; being sure to observe the exact Breadth of the Waist. When you have done this, then draw that Leg which the Body stands upon, and afterwards the other, which stands loose ; then draw the Arms, and last of all the Hands.

Take notice also of the Bowings and Bendings of the Body, making the Part opposite to that which bends correspond in bending with it. For instance, if one Side of the Body bends in, the other must stand out answerable to it ; if the Back bends in, the Belly must stick out ; if the Knee bends out, the Ham must fall in ; and so of any other Joint in the Body. Finally, endeavour to form all the Parts of your Figure with Truth, and in just Proportion, not one

Arm

Arm or one Leg bigger or less than the other ; not broad Shoulders with a thin slender Waist, nor raw and bony Arms, with thick and gouty Legs, but let there be a kind of Harmony and Agreement amongst the Members, and an agreeable Symmetry throughout the whole Figure.

But as the Essence of Drawing consists in making, at first, a good Sketch, you must in this Particular be very careful and accurate; draw no Part perfect or exact, till you see whether the whole Draught be good; and when you have altered that to your Mind, you may then finish one Part after another as curiously as you can. In drawing the Eyes, Ears, Legs, Arms, Hands, Feet, &c. great Care, Study and Practice, are requisite: This must be learned, by carefully imitating the best Prints and Drawings you can get of Eyes, Ears, &c. for as to the mechanical Rules of drawing them by Lines and Measures, they are not only perplexed and difficult, but also contrary to the Practice of the best Masters. But the Actions and Postures of the Hand are so many and various, that no certain Rules can be given for drawing them that will universally hold good; and as the Hands and Feet are difficult Members to draw, it is necessary, and well worth while, to bestow some Time and Pains about them, carefully imitating their various Postures and Actions, so as not only to avoid all Lameness and Imperfection, but also to give them Life and Spirit.

In drawing a labouring Man, you must represent him with strong Limbs and raised Muscles swelling and standing out, especially in bearing Burdens, drawing Weights, leaping, walking, combating, or such like violent Exercises. In representing Persons asleep, you must carefully avoid giving any such Postures or Actions in their lying as would not in all Probability afford Rest for a great want of Judgment would appear in representing their Limbs or Bodies supported by their own Force, and not by the Help of something else.

With regard to the Representation of the Passions, Mr. *De Piles* observes; that it is absurd, as well as impossible, to pretend giving such particular Demonstration, of them, as to fix their Expression to certain Strokes which the Painter should be obliged to make use of, as essential and invariable Rules. This, says he, would be depriving the Art of that excellent Variety of Expressions which has no other Principle than Diversity of Imagination, the Number of which is infinite. The same Passion may be expressed several Ways each yielding more or less Pleasure in Proportion to the Painter's Understanding, and the Spectator's Discernment.

Though every Part of the Face contributes towards expressing the Sentiments of the Heart yet the Eye-brow, according to Mr. *Le Brun*, is the principal Seat of Expression, and where the
 Passion

Passions make themselves most known. It is certain, says he, that the Pupil of the Eye, by its Fire and Motion, very well shews the Agitation of the Soul; but then it does not express the Kind or Nature of that Agitation; whereas the Motion of the Eyebrow differs according as the Passions change their Nature. To express a simple Passion, the Motion is simple; to express a mixt Passion, the Motion is compound. If the Passion be gentle, the Motion is gentle; if it be violent, the Motion is so too. We may farther observe, says he, that there are two Kinds of Elevation in the Eyebrows; one in which the Eyebrows rise up in the Middle; this elevation expresses agreeable Sensations; and it is to be observed that then the Mouth rises at the Corners: Another, in which the Eyebrows rise up at the Ends and fall in the Middle, denotes bodily Pain; and then the Mouth falls at the Corners. In Laughter all the Parts agree, for the Eyebrows, which fall towards the Middle of the Forehead, make the Nose, the Mouth and the Eyes, follow the same Motion. In weeping, the Motions are compound and contrary, for the Eyebrows fall towards the Nose, and over the Eyes; and the Mouth rises that way. It is to be observed also, that the Mouth is the Part of the Face which more particularly expresses the Emotions of the Heart; for when the Heart complains, the Mouth falls at the Corners; when it is pleased, the Corners of the Mouth are elevated; and when it has an

Aversion, the Mouth shoots forward, and rises in the Middle.

The Head, says Mr. *De Piles*, contributes more to the Expression of the Passions, than all the other Parts of the Body put together. Those separately can only share some few Passions, but the Head expresses them all. Some, however, are more peculiarly expressed by it than others, as Humility by hanging it down; Arrogance, by lifting it up; Languishment, by inclining it on one Side; and Obstinacy, with a stiff and resolute Air, makes it stand upright, fixed and stiff between the Shoulders. The Head also best shews our Supplications, Threats, Mildness, Pride, Love, Hatred, Joy and Grief: The whole Face and every Feature contribute something, but more especially the Eyes; yet though the Passions of the Soul are most visible in the Lines and Features of the Face, they often require also the Assistance of other Parts of the Body: Without the Hands, for instance, an Action is weak and imperfect; their Actions, which are almost infinite, create numberless Expressions.

It is by them that partly we desire, hope, promise, call and send back; they are the Instruments of Threatning, Prayer, Praise, &c. by them, we, in a great Measure, approve, condemn, refuse, admit, fear, ask, express our Joy and Grief; our Doubts, Regrets, Pain and Admiration: But to say how these Parts must be disposed for expressing the various Passions is impossible: Nor can any exact Rules be given for it, both because the Task

would

would be infinite, and because every one must be guided in this by his own Genius and the particular Turn of his Studies.

CH A P. IX.

Of DRAPERY.

IN the Art of clothing your Figures, or casting the Drapery upon them with Elegance and Propriety, many things are to be observed: However, this Art consists chiefly in three Points, *viz.* the order of the Folds or Plaits, the different Quality of the Stuffs, and the Variety of their Colours. As to the Folds, they ought to be so managed, as that you may easily perceive what it is they cover, and distinguish it from any Thing else; as for instance, that you see it is an Arm that is under the Drapery, and not a Leg: or a Leg and not an Arm, &c. Again, the Folds ought to be large, and a Contrast should be observed between them; otherwise, in the first Case, they break and divide the Sight too much; and in the next Place, the Drapery will be too stiff. As to the Quality of the Stuffs, it should be well considered; some Folds being abrupt and harsh, while others flow more soft and easy. Again, the Surface of some have a Lustre, while others are flat and dead; and some are fine and transparent, while others are firm and solid. The Variety of Colours, when well managed, makes the greatest Beauty in Painting: Some are not equally agreeable with respect to each other; and some are never to be placed near certain others.

The Drapery must never be made to adhere, or stick too close to the Parts of the Body, but it must seem to flow round, and, as it were, embrace them: Yet in such a Manner as that the Figure may be easy and have a free Motion. A great Lightness and Motion of the Drapery are only proper in Figures in much Agitation, or exposed to the Wind. The Nudities of the Figure should always be designed before you proceed to draw the Draperies. Draw the Outlines of the Garments lightly; then draw the great Folds first, and stroke these into lesser; taking Care that they do not cross one another. The Draperies that cover those Parts which are exposed to great Light must not be so deeply shaded, as to seem to pierce them; nor should those Members be crossed by Folds that are too strong; lest, by the too great Darkeness of their Shades, the Members look as if they were broken. Folds, in general, should be large and as few as possible: However, they must be greater or less, according to the Quantity and Quality of the Stuffs of which the Drapery is supposed to be made; suit the Garments to the Body, and make them bend with the Body, according as it stands in or out, straight or crooked, or as it bends one Way or another; and the closer the Garment fits to the Body, the narrower and smaller must be the Folds.

The Quality of the Person is also to be considered in the Drapery: For instance, if they are Magistrates,

gistrates, their Draperies ought to be large, fine and flowing; if Country-clowns, they ought to be coarse and short; and if Ladies and Nymphs, light and soft, &c. Folds, well imagined, give much Spirit to any Kind of Action, because their Motion implies the like in the acting Member, which seems to draw them forcibly, and make them more or less stirring, as the Action is more or less violent. An artful Complication of Folds, in a circular Manner, greatly helps the effect of Fore-shortenings. All Folds consist of two Shades, and no more, which you may turn with the Garment at Pleasure, shadowing the inner Side more deeply.

The Shades in Silks and fine Linen are very thick and small, requiring little Folds and a light Shadow: Observe the Motion of the Air or Wind, in order to draw the loose Apparel all flying one Way; and draw that Part of the Garment that adheres closest to the Body, before you draw the looser Part that flies off from it; lest by drawing the loose Part of the Garment first, you should mistake the Position of your Figure, and place it awry.

Rich Ornaments, when judiciously and sparingly used, may sometimes contribute to the Beauty of Draperies. But such Ornaments are far below the Dignity of Angels or heavenly Figures; the Grandeur of whose Draperies ought rather to consist in the Boldness and Nobleness of the Folds, than in the Quality of the Stuff, or the Glitter of Ornaments. Light and flying Draperies are proper only to Figures in great Motion,

or in the Wind: but when in a calm Place, and free from violent Action, their Draperies should be large and flowing, that, by their Contrast, and the Fall of the Folds, they may appear with Grace and Dignity.

C H A P. X.

Of drawing MIXED FIGURES.

IN order to draw the Form of any Beast, begin at the Forehead, with the Lead or Coal, drawing downward the Nose, Mouth, upper and neither Chap, ending the Line at the Throat. Then viewing it again, from that Part where you formerly began, continue it over the Head, Ears and Neck, till you have given the full Compass of the Buttock. Afterwards mark out the Legs, and touching out the Breast with the Eminency thereof, finish the Tail, Paws, Tongue, Teeth, Beard, and the several Shadows.

In drawing Beasts, you must be well acquainted with their Shape and Action, without which you will never perform any thing excellent in this Way; and whatever Beast you draw, you must be sure to give a Sketch of the Landskip of the Country natural for that Beast.

In drawing Birds, you are to begin also at the Head, continuing the Breast-line from under the Throat down to the Legs, then begin at the Pinion for making the Wing; this being joined to the Back-line, the Figure will be presently finished.

finished. The Eyes, Legs, and Tail, are to be drawn last; the Feathers, beginning at the Head very small, must fall backwards one Way in five Ranks, still increasing till finished.

Insects, as Flies, Bees, Wasps, Grasshoppers, Worms, and such like, are drawn with great Ease, provided you, for the first Time, have the Original before your Eyes.

In drawing a Flower, begin from the Rose-tuft or Wart in the Middle, as in a Rose or Marigold with the yellow Tuft, which being made, draw Lines equally divided from thence to the greatest Compass or Extent of the Flower. They may be drawn either fully open, or in the Bud; the Leaves may first be drawn rudely, afterwards giving them their Veins, or Jaggedness.

C H A P. XI.

Of drawing LANDSKIPS, BUILDINGS, &c.

ALL true Drawing consists in nicely measuring the Distances of each Part of your Piece by the Eye. In order to facilitate this, you are to imagine in your own Mind, that the Piece you copy is divided into Squares: As for Example; suppose, or imagine a Perpendicular and an horizontal Line crossing each other in the Center of the Picture you are to copy: Then suppose also two such Lines crossing your own Copy. Observe in the Original what Parts of
the

the Design those Lines intersect, and let them fall on the same Parts of the supposed Lines in your Copy. If you are to draw a Landskip from Nature, take your Station on a rising Ground, where you may have a large Horizon, and mark your Tablet into three Divisions downwards, from the Top to the Bottom: and divide, in your own Mind, the Landskip you are to take into three Divisions also. Then, turn your Face directly opposite to the Middle of the Horizontal Line, keeping your Body fixed, and draw what is directly before your Eyes upon the middle Division of your Tablet; then turn your Head, but not your Body, to the left Hand, and delineate what you view there, joining it properly to what you had done before. Lastly, do the same by what is to be seen on your right Hand, laying down every Thing exactly, both with respect to Distance and Proportion. Make the nearest Objects in your Piece the highest, and those that are further off to shoot away lower and lower, till they come almost level with the Line of the Horizon; lessening every Thing proportionably to its Distance, and observing, also, to make your Objects fainter and less distinct, the farther they are removed from your Eye. Make all your Light and Shades fall one Way; and let every Thing have its proper Motion, as Trees shaken by the Wind, the small Boughs bending more, and the large ones less; Water agitated by the Wind, and dashing against Ships or Boats, or falling from a Precepeice upon Rocks and Stones

and

and spirting up again into the Air, and sprinkling all about : Clouds also in the Air, now gathered with the Winds, now violently condensed into Hail, Rain, and the like; always remembering that whatever Motions are caused by the Wind must all be made the same Way.

Let the Work imitate the Season it is intended to represent; as, if you intend it for a Winter-piece, represent the felling of Woods, sliding upon the Ice, Fowling, Hunting, &c. making the Trees every where naked, or laden with Snow, or Hoar-frost; the Earth bare; the Air thick or heavy; the Water frozen, with Carts passing over it, &c.

Let every Site have its proper Adjuncts or additional Graces, as the Farm-house, Wind-mill, Water-mill, Woods, Flocks of Sheep, Herds of Cattle, Pilgrims, Ruins of Temples, Castles and Monuments, with a thousand such other Things proper to particular Subjects.

C H A P. XII.

Curious RULES for drawing any Object, in its Out-lines, as exact as Nature, with some farther INSTRUCTIONS for Shadowing, &c. without any Regard to the forementioned Rules, or any Knowledge in the Art of DRAWING.

TAKE a Sheet of the thinnest, or whitest brown Paper, and brush it over with Oil of Turpentine, which will immediately render it transparent :

✓ transparent: Then, after drying the Paper in the Air, strain it upon a Frame, and fix it against the Object you design to draw: This done, place, right before it, a Piece of Wood with a Hole in it, fit for one's Eye to look through, and as you meet any Out-lines of the Object on the transparent Paper, trace them over with a Pencil, by which Means, you will obtain the just Proportion and true Representation of any Object, in its Out-lines.

To render this still more elegant, observe the Tracings of your Draught wherever the Shades are, and mark them with your Pencil, for all the Art in the world can never dispose the Shades so regularly, as one may touch by this Method, but the Shades must be drawn quickly, after the Out-lines are drawn, not at different Times, because the Sun instantly changes them.

Here observe, as in certain Objects you will have fainter, stronger and darker Shades, in your Remarks of them, to take such Memorandums as may direct you how to finish them with Indian Ink, or other Colour, when you sit down to complete your Work. To this End the best Way is, before you trace out your Objects to prepare three Shells or Gallipots of Indian Ink, mixed with common Water, *viz.* one of a very faint black, one of a middling black, and one of an intense black, numbering them 1, 2, 3, and as you make your Observation on the Shades of your Object, mark upon your Draught the same
Numbers

Numbers as they happen to appear, so that afterwards you may finish with Certainty.

In this Regard the transparent Paper is of great Use; for being laid upon any Paper or Print in a loose Sheet, all the Lines will be seen so perfectly through it, that you may copy them with the greatest Ease; and if the Print or Picture be done by a good Master, you can see which Lines are strong, which soft, and how to imitate them.

There is yet another Way to take Views and Landskips, which some prefer to the transparent Paper; and that is either with white or black Tiffany or Lawn strained upon a Frame, and used in the same Manner as the Paper, excepting that, as the Black-lead Pencil is used to the Paper, on the white Tiffany and on the Lawn, you must use Charcoal very soft and finely powdered; but on the black Tiffany, very tender white Chalk is to be used.

C H A P. XIII.

Several other curious and easy Methods of taking VIEWS, copying DRAUGHTS, PRINTS, &c. to the greatest Degree of Accuracy.

- I. **A** Draught may be taken regularly, from a Drawing on transparent Paper, as follows. Take a Piece of Paper of the same Size with that of the Draught; rub one Side of it with some Powder of Black-lead, till it be well
and

and equally blacked, so that a Finger, touching it, will hardly be tinged with the Blacking; then take the **Print**, and laying the Paper underneath it with the black Side downwards upon another Piece of white Paper of the same Size, pin the three together, in two or three Places: Afterwards, take a Pin or Needle, somewhat blunted at the Point, and trace it over the Outlines of your Picture, which, with a little Pressing, will direct the black Paper to impress the white, so as to receive every Stroke you draw; this done, you may carefully correct what Errors you see with your black-lead Pencil, cleaning the new-made Draughts slightly with the Crumb of stale Bread.

2. As for the Draughts taken on Tiffany or Lawn, they are only to be laid on Paper, that is, such as is drawn with Charcoal upon white, and that drawn with Chalk upon black or blue Paper; and then, giving each of them a Knock or two with a Hammer, the Charcoal or the Chalk will fall through them upon the Papers directly in the Lines they were drawn, and give you the true Representation of the Object drawn from the Life, in white Lines upon the black Paper, and in black Lines upon the white.

Then strengthen these Shadows of Drawings with your black-lead Pencil, Chalk, or red Oker, upon the Pieces of Paper, where they made the Marks; for otherwise the Lines will easily be rubbed out: But it must be observed, that this Amendment is to be made soon after the Lines, be-
cause

ause those tender draughts will quickly vanish, if Care is not taken to strenghten them immediately. You are to begin this operation at the Bottom of the Drawing.

3. Another Way is, by taking a thin Piece of Paper, and holding it against a Glass-Window, particularly a sashed one, because the Interruption of the Lead in the smaller glazed Windows, will hinder Part of the Prospect; then draw what you see from the Glass, and afterwards the black-lead Paper is to be used as directed before.

4. There is another Way still which may be more easy to the Hand or Arm of a Person not accustomed to drawing upon a Paper or Lawn placed upright, which is by the Use of a Camera obscura, tho' to help the Hand one may hold a Baguette, or such a Stick in the left Hand as the Oil-Painters use to rest the right Hand upon; or have some other Rest made for the right Hand, as may be easily screwed up and down at Pleasure. But there is this Difference still between drawing a Piece of Perspective, or View on a transparent Paper or Lawn placed upright against any Object, and drawing by the Camera obscura, that such a Piece will take in more of the View or Object from a greater Distance than the Camera obscura will: However the portable Camera obscura will, at first, be very easy to the Arm of a Beginner, by Reason the Objects appear on an horizontal Plane, such as a Table,

Table, and the Hand having a proper Rest, will more easily follow the Line represented on the Plane with greater Exactness.

The Camera obscura is a Machine or Apparatus wherein the Images of external Objects are represented distinctly, and in their genuine Colours, either in an inverted or erect Situation. This Machine may be made as follows : Darken a Chamber, one of whose Windows looks into a Place set with a Variety of Objects ; leaving only one little Aperture open in the Window. In this Aperture fit a Lens, either a plane convex one, or one convex on both Sides, so as to be the Portion of a large Sphere. At a due Distance, to be determined by Experience, spread a Paper or white Cloth on the Wall, unless the Wall itself be whitened so as to serve the Purpose : And on this the Images of the desired Objects will be delineated invertedly.

In this Case, it is not more difficult to draw, or rather copy, the Objects, though they are reversed, than to draw or copy several Things which we see upright on the Frames of transparent Paper, Lawn, or Tiffany ; for to trace Lines will be as easily done one Way as the other ; and though the Objects falling on the Paper or Cloth will, while you are drawing them, be reversed, it is but turning the Paper or Cloth upside down, when they are done, and the Drawing will be right to the Eye. But to obviate this Difficulty, let the Paper, or what is to receive the Objects, be placed against the Back of a Chair, and let a

Person

person look on the several Objects represented thereon over the Back of the Chair, and this will set them right to the Eye. Or, if you would rather have the Images appear erect, it may be done either by means of a concave Lens, or by receiving the Image on a plane Speculum inclined to the Horizon under an Angle 45° , or by means of two Lenses included in a Draw-tube instead of one.

It is to be observed, that if the Aperture does not exceed the bigness of a Pea, the Objects will be represented thereon, even though there be no Lens at all. To render the Images clear and distinct, it is necessary that the Objects be illuminated by the Sun; and they will be still brighter if the Spectator first stay a quarter of an hour in the Dark.

Care must be, likewise, taken that no Light escape through any Chinks, and that the Wall be not too much illuminated. Farther the greater Distance there is between the Aperture and the Wall, the larger and more distinct will the Images be; but the Rays becoming thus too much dilated, the Brightness of the Image is weakened, till at length it becomes insensible. But the portable Camera obscura is more proper for Beginners, as being more easy for their Arm; besides, the Objects appearing on an horizontal Plane may, of course, be drawn with greater Exactness.

The Construction of a portable Camera obscura may be as follows; Provide a wooden Chest, in the
Middle

Middle of which raise a little Turret either round or square, open towards the Object. Behind this Aperture incline a little plane Mirror, to an Angle of 45° which will reflect the Rays upon a Lens Convex on both Sides, included in a Tube. At the End of the Focus of the Lens, place a Table covered with a white Paper to receive the Image; and lastly, make an oblong Aperture to look through. By means of this Machine the Images will be exhibited perfectly like their Objects, each cloathed in their different Colours, whereby any Person unacquainted with designing or drawing, will be able to delineate any Thing to the greatest Degree of Accuracy and Justness; and those even well versed in Painting will find many Hints by it to perfect them in their Art.

5. Thus far we have shewn how any Person may copy a Draught; Print or Piece of Painting, or even make an exact Representation from the Life: But we shall yet add two other Methods, both easy and entertaining, not hitherto mentioned, for taking off Draughts or Drawings, which are as follow. Prick with a Pin the Outlines of the Print or Draught you design to copy, and then laying the same on a Sheet of Paper, take a Powder-puff or Tuft of Cotton, dipping it now and then in Charcoal Dust, and beat it over the pricked Lines through the Picture, by which means you shall have full Directions marked on your Cloth or Paper sufficient to finish a just Drawing.

6. The other way is, by making such an Impression

pression from the Print as shall give a just Copy of it; and it is of great Use when we want to carry every Stroke of the Engraver along with us, which Method, if you are very careful, will indeed but very little fully the Print.

For this End, take some white or green Soap, which mix with such a Quantity of Water, as will bring it to the Consistence of a Jelly; with this Mixture rub the Print, and with a wet Sponge gently wet the Paper designed for receiving the Impression; then laying it on the Print, cover all with two or three other Pieces of dry Paper, and rub it very hard all over with any Thing that is smooth and polished; and thus the wetted Paper will have upon it the Reverse of the Print you rubbed it upon, with every distinct Line in the Original, if you have been careful to rub it equally.

C H A P. XIV.

SECRETS for copying of Drawing, &c. continued; also for taking off Medals, &c. various Ways, with several other curious PRECEPTS for the Use of Painters, Statuaries, Founders, &c.

I. *To take a Drawing with FIXED INK.*

TAKE a thin Sheet of Paper, and rub it all over with fresh Butter, as equally as possible; then dry it well by the Fire, and rub the Butter Side with either Carmine, Lamp-black, Black-lead Powder, or blue Bice finely ground, till it is all equally coloured; taking care in rubbing on any of those, that the Colour will not come

come off by a very slight Touch of the Finger. Then lay the coloured Side of this buttered Paper upon a Piece of clean Paper, and lay the Print you design to copy upon the buttered Paper; afterwards with a fine Pin, or a Needle blunted a little at the Point, trace the Out-lines of the Drawing carefully, by which Means you will have a good Copy of it upon your white Paper; which may be touched afterwards with Crayons, or the like Colour.

V II. *To take the Impression of a Print with Red-Ink.*

Mix some Vermillion finely ground with Linseed-Oil, but not so much, but what it shall still be liquid enough to run or flow in a Pen. With this trace the Lines of your Print; and then with a Sponge dipt in Water, wet the Backside of the Print, and turn the printed Side down upon a Piece of white Paper, so as to lie smooth: then lay over that a Piece of dry Paper, and press it hard in every Part; and the lower white Paper will receive the Impression. But if you have a Linen Press, it is better to put your Papers between two of the Leaves, and screw the Press as tight as you can, by which Means you will have a fine Impression.

III. *To take Draughts, Writings, &c. with red LOOSE INK.*

Take some Vermillion finely ground, and mix it with fair Water in a Gallipot with some Cotton in it, so as that it may run very freely in the Pen: With this Mixture draw over all the Strokes of your Print, imitating both the finer and stronger Lines

Lines ; then with a Sponge dipt in Gum-water wet a Piece of clean white Paper, and while it is wet, turn the Print upon it ; and pressing it well take off the Print, and you will find all the Strokes remain on the clean Paper ; and as soon as it is dry the Vermillion will be fixed to it.

This Sort of Ink has been used frequently in writing any Thing designed to be engraved ; for by turning the writing Side of the Paper down upon a Copper-plate covered with Bees-wax and white Ground, rubbing it very equally, the Impression will be upon the Wax.

IV. *Taking Draughts with blue LOOSE INK.*

You may likewise make such a Sort of Ink with blue Bice and common Water as will run very finely in a Pen, and serve for the same Use as the former Ink.

V. *To take off a Drawing in a standing RED COLOUR by tracing.*

Take Vermillion finely ground, and mixing it with a little fresh Butter, rub a clean Sheet of Paper on one Side with this Mixture, so that it may bear a slight Touch of the Finger without leaving the Paper ; then laying the coloured Side of this Paper upon a clean Sheet, lay your Print upon the other Side of the coloured Paper ; and then trace every Line you think proper, as already directed in tracing a Draught with fixed Ink : But be sure to pin the three Papers together at the Corners, to prevent their slipping,

slipping, which would inevitably spoil your Work. This Impression made by tracing will hold without rubbing or pressing the Papers. The Quills of a Swallow after they are thoroughly dry, are very good for tracing.

By mixing Carmine with some fresh Butter, and colouring a Paper with it in the same Manner, you will obtain a more beautiful Colour; and by colouring a Paper, in like Manner, with blue Bice and Butter, you may have the Drawing blue

VI. *To take the natural or lively Shape of any*
HERB or TREE.

First, take the Leaf you would copy, and gently rub the Veins on the Back-side of it with a Piece of Ivory, or some such like Matter, so as to bruise them a little; afterwards wet the same Side gently with Linseed-Oil; and then press it hard upon a Piece of white Paper; and you shall have the perfect Figure of the Leaf, with every Vein in it justly expressed: This Impression being afterwards coloured will seem truly natural, and may be useful to such as would remember Plants.

VII. *Another Way of painting the LEAVES of Plants, so that the Impression shall appear as black as if it had been done in a Printing Press, is as follows:*

When the Leaf is dry, take such a Ball as the Press-men use for blackening the Types, and rubbing it equally over with Printer's Ink, strike it gently four or five Times on the Back of the Leaf,

All the Veins are blacked with the Ink; then laying the Leaf on a flat Board or the like, with the Backside upwards, put a Piece of white Paper well moistened on the Leaf; and pressing it pretty hard, but not so as to bruise the Fibres, you will have a fine Impression.

But this may be done to still greater Advantage, by Means of a Piece of Wood in the Form of a Cylinder, about a Foot long, and an Inch and a half Diameter, the middle Part, about six or eight Inches long, being covered with a woollen Cloth rolled three or four times round it. With this Cylinder roll the Paper over the Leaf, four or five times backwards and forwards, and you will have a curious Impression.

But where Printer's Ink is not conveniently come at, the following Method may be made use of. Rub the back of the Leaf, as before directed, with burnt Linseed-oil: Then, strewing some Powder of black Lead, or for want of that, some Charcoal, or small Coal-dust, or the Powder of burnt Cork, upon a smooth Board, so as equally to cover it; stroke the Powder gently over; and oiling the Backside of the Leaf, put it upon the Board; and then laying the white Paper upon the Back of the Leaf, press or roll it, as before.

If none of these Ingredients are conveniently had, take Vermilion, and mixing it with fresh Butter to the Consistence of Printer's Ink, cover

your Printing-ball with it; daub it over the back of the Leaf, and take your Impression as before.

Where Vermilion is used, Bice may also be made use of, either with Butter or Oil, by grinding blue Bice with some burnt Linseed oil, and using it as before: Thus, you may have a fine red or blue Ink proper for Impressions of this Sort, but the blue is preferable in colouring Leaves, because it is an agreeable Colour for the green Sort.

It may be observed, that the Reason why the Back of the Leaf is the proper Side to make the Impression from, is because the Ribs or Vessels rise on that Side above the fleshy Part of it; and therefore being coloured with any of those Inks they are the fittest to give an Impression, whereas in the Fore-side of the Leaf, the fleshy Parts rise and then these fine Fibres are sunk between them.

VIII. *To take off the LEAVES of PLANTS in Plaster of Paris, so as that they may afterwards be cast in Metal.*

Those Persons who cast in Metal have frequent occasion to use Leaves of several Sorts in order to embellish their Work; these are generally made from Models done by the Hand, which take up a great deal of Time, and even at last are imperfect: but the following Way, which is communicated by a Gentleman from Italy, is greatly preferable, and much easier.

Soon after you have cropped the Leaf you desire to take an Impression from, lay it between the Leaves of a Book, till once it shall lie flat; then, upon a smooth Board with a strong Gum-water, made of Gum-arabic, fix the fore-side or front of the Leaf to the Board; when this is done, raise round it a little Wall of coarse Paste, half an Inch high; or, if you can conveniently, surround your Piece of Wood with Paste-board, or Card-paper, so close as that it shall hold a Liquid for some time; then oil the back of your Leaf, as directed below in the Method for casting of Medals; and pour on Water and Plaster of Paris as is there directed, which, when it is dry, will give you an exact Impression of every Vein of the Leaf, and from which you may easily make a Mould to cast in as you fancy.

IX. *An expeditious Method of taking the Impression of any BUTTERFLY, in all its Colours.*

Having taken a Butterfly, kill it without spoiling the Wings, which contrive to spread as regularly as possible in a flying position; then, with a small Brush or Pencil, taking a Piece of white Paper, wash part of it with Gum-water, a little thicker than ordinary, so that it may easily dry; afterwards laying your Butterfly on the Paper, cut off the Body close to the Wings, and throwing it away, lay the Paper on a smooth Board, with the Fly upwards; and laying another Paper over that, put the whole Preparation into a Screw-press, and screw it down very hard, or otherwise press it, letting it remain under the

Pressure for the Space of an Hour. Afterwards take off the Wings of the Butterfly, and you will find a perfect Impression of them, with all their various Colours marked distinctly, remain upon the Paper. When this is done draw between the Wings of your Impression the Body of the Butterfly, and colour your Draught of the Body after the Life.

X. *To take off the Impression of MEDALS.*

This may be of Use to such as would preserve to themselves good Specimens of fine Draughts of curious Medals, especially as it is easily executed, and but a trifling Expence.

✓ One Way is as follows. Take Isinglass, and breaking it in Pieces, dissolve as much of it as is necessary over the Fire in a Quantity of Water sufficient only to cover it, taking care to keep it stirring till the whole is dissolved. This done, with a Hair Brush, stroke some of the Glue over the Medals whose Impression you would take, after placing them as horizontally as you can, and when you have covered them perfectly all over, let them lie till the Glue is hardened; and afterward, with the Point of a Pin, or Needle, raise the Edge of the Glue from each Medal, and the whole Impression of the Medals in Glue will fly off as hard as a Horn, with all the fine Sharpness of the Medal as it was struck.

This Glue may be made of whatever Colour you please, by mixing the Colour in the Water
the

the Glue is boiled in. The Impression must be dried immediately, but very regular, and not in a hot Sun, nor in any damp Place.

If you use Isinglass without any Colour mixed with the Water, you may, as soon as you take the Impressions from the Medals, breathe gently on the concave Side of them, and then lay them upon the thickest Sort of Leaf-gold, which will stick to them; and by shining through the Ising-glass, will appear like a Gold Medal: But if we would imitate a Copper-medal, we should mix Carmine with the Water that we dissolve our Isinglass in.

Although Water may do very well for dissolving the Isinglass in for this Purpose, yet Brandy, or Spirits of Wine, will give the Glue a much greater strength, so as not to be subject to soften in a damp Air.

XI. *To take the Impression of large MEDALS.*

First rub the Medals gently over with a Tuft of fine Cotton moistened or greased with Sweet-oil; then having some melted Brimstone, enough to cover the Medal half an Inch thick, put a Hoop of Card-paper round the Edge of it, and pour the melted Brimstone on it, but not too hot; as soon as it is fixed and hardened, take off the Hoop of Paper, and the Impression on the Brimstone will come clean from the Medal, which will serve for a sharp and correct Mould wherein you may cast another with Plaster of Paris.

✓ But Brimstone should not be used on Silver-medals,, because it will effectually change their Colour. Therefore, to take Silver-medals off, bind them round, after oiling them, with a Hoop of some stiff Paper, as before, and mixing a little Plaster of Paris with Water, fill the Hoop with it ; then immediately fill the Case in a sprinkling Manner with the same Plaster, till it hardens ; and when it turns dry, take it off from the Medals. But from those Moulds cast in Brimstone that are concave, you must again cast such Medals in Plaster of Paris, and they will be convex, oiling the Mould and using the Plaster of Paris as before. By this Method you may take off any Model or fine Bass-relief with great exactness, even so as to form Models from them in any sort of Medals.

XII. Another Way of taking off MEDALS is as follows.

Procure some thin Pieces of Lead, and placing the Medal horizontally on the top of a firm Post, or any steady Place ; lay a Piece of harder Metal flat over the Lead ; and place a Piece of a round turned Stick over that, such as is used in the Staff of a House-brush ; saw off about five or six Inches in Length ; and holding that tight with the left Hand, on the Lead and flat Piece of Metal, strike the top of the Stick a smart Blow with a large Hammer, and it will give the Lead a perfect Impression of the Image of the Metal. But this must be done by one single Blow to render the Impression perfect.

XIII. *Various Ways of taking off* MEDALS.

Take the Shavings of Paper, and boiling them till they are tender, pound them well in a Mortar, so as to reduce them into a Paste: then boil them again in Spring-water with a little Gum-arabic: Let this Mixture stand some time to settle: then pour off the Water, straining it through a Sieve or Linen-cloth and the remaining Part of this Mixture will be an excellent Ingredient either to press into a Mould, or upon any Medal; for when the Paste is dry, it will come off very sharp.

Some Medals that are under-wrought cannot be taken off this Way; therefore, in such Case you should take common Glue, and melting it, fix a Hoop of Paste-board, &c. round the Edge of the Medal, and pour on the Glue hot; the Medal having been first oiled with a Tuft of greased Cotton.

When the Glue is dry and hard, take off the Hoop, and the Glue will fly off from the Edges; and it will, as being subject to bend and give way, which the Things formerly mentioned are not, come very easy off. But the Glue ought to be made strong, and should be poured on one third Part of an Inch thick.

When an Impression has been taken by this Means, you must then hoop your Mould of Glue with either Card-paper or Paste-board, as before

directed, taking Care to oil it so that no Bubbles or Blisters may be seen; then you must cast your Plaster of Paris in it, and you will obtain, by these means, a good Copy of the Medal. When this is dry, the Glue will fly off, or may be broken off, and there will remain a good Pattern to cast from.

Also, a Putty may be made of Linseed-oil and fine-ground Starch, which being well worked together into a paste, will take a good Impression from any Medal. By means of these Moulds you may cast good Medals of Bees-wax; but they will come off much sharper if the Mould be in Brimstone, than if it be in Plaster of Paris. But then your Wax should be as well blanch'd or whitened as if it was used for Wax-candles; however, it will be necessary to grease the Mould before the Wax is poured in; and though white Wax is here recommended, yet it will not be best that the Copy of the Medal be white, because the darker Colours shew the Medal much better.

If you would have your Copy of a red Colour, mix Vermilion with the Wax, while it is melting; and if you would have it blue, put in Stone-blue well beaten or ground, into the melted Wax.

As soon as the Wax-medals are cold enough to take off, you should lay some Leaf-gold upon them, pressing it down gently with a piece of Cotton, without rubbing it backwards or forwards; and that will gild your Medal. When you cast Medals
in

in Plaster of Paris, to make them look like Steel or Metal, rub them over with a Tuft of Cotton slightly greased with Oil: then strewing over them some Powder of black Lead, rub them well with such a Brush as is used for the Teeth, till the whole is equally covered, and this will give them a fine Metal-gloss. You may make these Medals in Plaster of Paris look like Box, by boiling them in Linseed-oil; and this will harden them to such a degree as to bear the Brush to clean them when they turn foul, or dirty. If you would have these Medals look of a yellow Colour, boil a little Pearl-ashes in a Pint of Water, till it makes a strong Lixivium; then put in half a quarter of a Pint of French-berries: Boil this till the Liquor is of a strong yellow, and use it with your Plaster of Paris instead of common Water.

If you would have the Medals look green, the fine, transparent Gum of Verdigrease mixed with the Plaster of Paris, will give them that Colour; and for a Silver-colour, Leaf-silver or Tin-foil may be used in the same Manner as the Leaf-gold for the Gold-colour: for the Copper-colour, German Leaf-copper may be used.

XIV. *To take off Impressions in Plaster of Paris from COPPER-PLATES.*

Oil the Plates a little, and binding them about, either with Card or other Paste-board Paper, pour on them some of the finest Plaster of Paris and Water; and finishing the Work with Plaster

have a purplish Cast, use a thin Cake on the shady Side, suffering the Colour only to shine a little into the Light, which will give a Lustre on the Whites ; and if a greenish Cast should be there, use a very faint Colour of the Sap-green ; or in Proportion of the Spa-green mixed with the Verdigrase-green.

All these Colours mentioned for shading the Whites may be found in the following Directions.

C H A P. II.

WHITES for Painting in Miniature.

1. **T**HE best White sold for painting in Water-Colours is Flake white : this is better than white Lead-ground, and if it be pure, far exceeds it in Beauty ; because the white Lead is apt to turn blackish, especially if it be used in a hard Water.

2. But some recommend a White made of Pearl and Oyster-shells reduced into an impalpable Powder, so soft as to feel like Grounds of Starch, or Hair powder : this is by some called Pearl-white, and will mix well with any Colour. But if you use white Lead, first rectify it with White-wine Vinegar, which causing a Fermentation, the White will soon settle ; after which pour off the Vinegar, and wash the White with common Water. The Method of washing it is thus.

thus. Put the Powder into a Glass of Water; stir it about, and presently pour off the Water, while it is white, into some other clean Glass, or Vessel: then letting it settle, pour off the Water from it, and you will have an excellent White, to which when it is settled, you are to put as much Gum-water as is necessary to give it a Glaze.

It is observable that white Lead will turn black, if mixed with Water that comes from Iron or Clay; that is, in the Space of a Month or two, you may perceive that those places where it lies thickest tinged with black; and if it be mixed with any other Colour, it will soon change, or alter it.

3. Some recommend the Powder of Egg-shells of the brightest Colour, and well cleaned and washed, as very good to be ground with Gum-water; or you may put a twentieth Part of clean white Sugar candied to grind with it in Water: it must be ground as fine as possible; that is, to the State of an impalpable Powder; and then use it. Some say it is better if rectified Spirit of Wine be poured on it, which will clear it from any Dross that may be in it: this, it is probable, must be poured off, when the Spirit of Wine has done its Work; and then the Parts left behind must be mixed with Gum water again.

But it has been found by experience that Egg-shell Powder is of very great Service, as a White, in Water-colours, and that itself and the Oyster

Oyster-shell Powders, well rectified and mixed with the White of an Egg well beaten, will make an extraordinary Mixture in other Colours, and will correct them from changing or altering their Qualities.

4. As to a White for illuminating of Prints the clear White of the Paper is to be left uncoloured, and if it happens that the Paper is apt to sink, or to spread any Water-colour that is laid upon it more than is necessary; then the way to correct it is as follows. Fix the Paper in such a Station as it may only receive the Colour you lay on to glaze, just as far as you designed it; then take some Starch boiled and prepared in Water, of a middle Strength, and with a large Painting-brush, stroke it over the Back of the Print; and after it has been well dried in the Air, or Sun, put the Print in a Book with a Weight upon it, to take out the Crumplings which it may receive by wetting of it, and thus will any Print be rendered fit to receive Water-colours, which will be prevented from running further than one would have them.

5. A fine White for Water-colours is made by dissolving Filings of fine Silver or Silver-leaf in Aqua-fortis; then evaporating the Aqua-fortis till it looks like Crystals in the Bottom of the Glass: Decant the other Part of the Aqua-fortis, and wash the Silver five or six times in common Water, till it is freed from the Aqua-fortis, which may be known by tasting it; then dry it

for

for Use. It must be used with Gum-water, and a little Water of Sugar-candy.

6. An incomparable, fine white Lead colour is made by grinding choice white Lead well upon a Porphery with Vinegar, so that it turns blackish: Then take a Pot full of Water, and washing the white Lead in it very well, let it settle; and pouring off the Water, grind it again with Vinegar; repeat this once or twice more; and you will have an excellent White both for Water-colours and painting in Oil.

7. *To make a good White for the Ground, for Water, or Oil-colours, proper in Miniature.*

Take a Pound of Glover's-clippings, put them some time to steep in Water: Then boiling them in a Kettle, with twelve Quarts of Water till it sinks to two, strain it through a Linen-cloth into a new earthen Pan: this is called Glove-glue, or Size, and to know whether it be strong enough, it is only necessary to try, when it is cold, and has got its Consistence, whether it be stiff and firm under the Hand.

The Glue being made, take white Chalk, and reducing it to Powder, and melting the Glue, while it is hot, put such a quantity of White in it, as to make it as thick as Pap: then leaving it to steep for a quarter of an Hour, stir it about with a Bristle-brush.

Then taking some of this White put more Glue to it, in order to make it brighter, for the
first

first or second Lay : this must be applied by beating with the end of the Brush. Mind that you let every Lay dry well before you put on another. If it is Wood you work on, you must put on a Dozen ; but if it is thick Paper, six or seven are sufficient.

This done, take Water, and dipping a soft Brush in it, and draining it with your Fingers, rub the Work with it, in order to render it the smoother. When your Brush is full of White, you must wash it again ; and also change the Water when it is too white. You may likewise sometimes make use of a wet Linen-rag instead of a Brush. Your Work being very even, let it dry, and when it is so, rub it with Shave-grass, or a bit of new Linen-cloth, to make it soft and free.

C H A P. III.

Of YELLOW.

I. **T**H E R E are some Objects which have the appearance of Gold shining through the Colours of Green, Red, or Blue, such as some sort of Flies and Beetles, and the Cantharides. This golden Transparency is very well imitated by laying some Gold-leaf on the shaded Part of the Drawing, giving in a little to the light Side of the Print. The way of laying on the Gold-leaf, is by washing the Part where the Gold is to be with strong Gum-water, and, when

It is somewhat dry, by laying on the Gold as smooth and even as possible; pressing it down close with Cotton. But in doing this, care must be taken that, in laying on the Gum-water, you do not exceed the Limits you would have the Gold appear to shine. In this case the Gold is to shine only through the transparent Colour which is to be laid on.

It must be observed, that the Gold-leaf will not receive Water-colours regularly, and for that Reason it must be stroked over with a little thin Liquor of Ox-gall in a painting Brush of Camel's Hair, by which means it will receive any Colour that you have a mind to paint upon it, and will hold it. The Greens may be first the Verdigrise-green, or Sap-green (which Colours shall be described in their Places;) the Reds may be Lake or Carmine; the Purples, Lake and fine Indigo, or Carmine and Indigo; and for the Blues, Indigo on the dark side, and on the light a little stroke of Ultramarine-blue, just to shine into the Light, which will have an admirable effect.

2. There may be found upon Rose-trees, in June and July, a kind of Beetle of a gold and green Colour, which may serve for a Direction in this kind of Painting. But if Gold itself be used, it will be best to polish it, which may be done in the following manner.

There may be seen in some Manuscripts fine golden Letters which rise above the Surface of
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the Vellum or Paper: the Composition that raises them thus is said to be made up of Vermilion and the white of an Egg, whisked or beaten up to the Consistence of an Oil, and worked together like a kind of Paste, and with a Stamp fixed to the Vellum or Paper with Gum-arabic. On this Figure of a Letter wash some strong Gum-water with a Pencil of Camel's-Hair, observing that the Gum does not reach more than the Out-lines; then lay on the Gold-leaf close with some Cotton, and being dried, rub it with some dry Cotton; and then polish it with a Dog's-tooth: this will make it appear as if it was really cast in Gold.

3. There is besides this another way of working in Gold, and that is performed by Shell-gold, but then it must be pure Gold, and not that brought from *Germany*, which turns green in a few Days time. Before you use this Gold, cover the shady Parts with Vermilion; and after your Gold has been well rectified with Spirit of Wine, lay it on with Gum-water, which will readily mix with it; and when it is dry, polish it with a Dog's Tooth. In laying on Gold, it will be best to leave the Lights without it, because it will make a much brighter Appearance than if the Object was covered all over with it. But if, by Accident, or otherwise, the whole Piece happened to be covered with Gold, there is no better way to set it off, than by tracing over the shady Parts with Gall-stone, or, what is much preferable, the Yellow made of

French-

French-berries, the Composition of which is treated of below : But it is the deepest that is to be used in this way. A little Minium heightens it very much. How the Minium is to be rectified may be learned among the Reds. Observe to polish the Gold before you use the Minium on it.

After this Colour of the Gold, the Yellows shall be treated of as they fall gradually in their Strength.

4. The first Yellow is a kind of Straw-colour, and is made of Flour of Brimstone, which of itself is fine enough to mix with Gum-water.

5. A common way of illuminating Prints is by giving the Tincture of Gamboge for a Yellow; and this may be of two or three Sorts, either fainter or stronger; the last to be a Shade to the first, and to be shaded with the Preparation of French-berries.

6. Mr. Boyle says, that if the Roots of Barberries are cut and put into a Lixivium made strong with Water and Pearl-ashes, there will be a fine Yellow produced from it: this having been often tried succeeded very well.

7. He likewise proposes another way for making a transparent Yellow, which is by boiling the Root of a Mulberry-tree, washed well from the Earth, in a strong Lixivium of Pearl-ashes and water; this will afford a yellowish Juice, from which may be extracted a Tincture much deeper than the former.

8. Yellow

8. Yellow Oker will likewise make another good pale Yellow, but it is a Colour rather of too much Body for illuminating of Prints ; yet being well ground with Gum-water, it is of use after it has been well washed.

9. The Plant Celandine will afford another good Yellow by infusing it in Water and pressing it gently, and then boiling the Liquor with a little Alum. This Yellow will incline somewhat to Green.

10. But a Yellow which some prefer to the rest, and may be used in several capacities of Lights, is one made of French-berries, and prepared as follows. Boil two Ounces of French-berries in a quart of Lixivium made of Pearl-ashes and Water, till the Liquor gives a fine tinge of yellow to a bit of Paper dipped in it ; and then pour it off from the Berries ; let the Liquor cool, and bottle it up for use.

Then again, put a Pint of the same Lixivium to the Berries, and boil them till the Liquor is as deep-coloured as Gall-stone, and this will be fit for the Shade of any sort of Yellows you can use. This may be boiled till it produces a brown Colour ; and will, with a little Ox-gall, serve to shade any Leaf-gold that is laid on Paper, and is much preferable to Gall-stone in imitating any Gold-colour ; and it answers well upon a Tincture of Gamboge, or any of the former Yellows.

11. Next to this may be reckoned the Tincture of

of Saffron in common Water only, which affords a bright reddish Yellow, such as would be required for an Orange-colour, in covering the shadowed Parts of a Print; and when Saffron is infused in rectified Spirits of Wine, there is nothing higher: but then it will fly, unless it be loaded with Gum-arabic.

12. As for a deep Yellow, with á Body, Dutch Pink comes the nearest of any to the forementioned strong Yellow made of French-berries in point of Colour: but the English Pink, which is still made of French-berries, is of a lighter Yellow.

13. Also, a good yellow Colour for illuminating Prints may be extracted from the Roots of Ginger; and with transparent Verdigrise it makes a fine Green.

It is to be observed, that the English and Dutch yellow Pinks are made with French-berries ground to a fine Powder and boiled.

C H A P. IV.

Of ORANGE Colours.

AN Orange-colour for washing Prints is made by laying on a teint of Gamboge; and over that some Minium or red Lead washed, and rendered fine and fit for use; it not being fine enough to paint with as it is bought at the Shops; and besides it will change, or turn black

in a few Weeks, if it be not refined ; but being well prepared, it will be very lasting and beautiful. But this you must take notice of, that an Ounce will not produce above twenty Grains of a good Colour to stand the Test of Painters. This Colour may be mixed with Gamboge upon a white Dutch Tile, to render it of the Tint you would have it, either softer or stronger ; or else the Gamboge may be glazed over, and strengthened with the Tincture of Saffron, which will make it glare into a strong Orange.

C H A P V.

Of MINIUM, the brightest RED LEAD ; the Manner of preparing it.

THE Minium or red Lead is as heavy and strong a Colour as most we have ; and prepared, is the most beautiful one, when it is well washed and cleansed of its more weighty Parts, which cause it to turn black.

Mr. Boyle directs the preparing, or cleansing it in the following Manner. Put four Ounces of it in a Quart of Rain-water ; then stirring it, pour off the Water immediately, and let it settle to the bottom of every Cup or Glass you pour it into ; then pouring off that Water in a Day's time you will have the Colour dry, and as fine as can be desired. Afterwards put a little Gum-arabic into each Glass or Cup. and as much Water as will moisten each of them.

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Any one of these may be afterwards used with Gum-water ; but if the Gum you put in at first make it strong enough to glaze it, then you need only add to it common Water ; and according as your Colour is less or more gummed, use less or more Gum-water ; for it is of itself a dead Colour. When you use this Colour, touch it gently on the Yellow above-mentioned that is made of the yellow Berries, into the light side ; and if it wants a Shade, you may put a little Vermilion upon it ; but Vermilion is too heavy to paint with, when you would illuminate your Prints, because it hides the Shades of the Engraving, though sometimes they had better be hidden than appear ; some generally shade this Minium with Carmine, which gives it a fine effect, and renders it equal to the brightest red Flower that is to be seen ; leaving still the Lights uncoloured, only dashing a little way into the Lights with the Minium.

When the Carmine has shaded the Minium, it may be shaded again with Lake in the strongest Part to bring it to a deeper red.

C H A P VI.

Of other REDS.

1. Scarlet-Red.

SCARLET may be represented on a Plane with Minium a little mixed with Vermilion ; but if you have occasion to paint a Flower of a Scarlet Colour on a Print, let your Lights as well as Shades be covered thin with Minium ;
and

and the shaded Parts glazed with **Carmine**, which will produce an admirable **Scarlet**, such as is in the Flower **Scarlet Martagon**.

Crimson-Red.

A **Crimson-colour** is represented with **Carmine**, but it is necessary that the Buyer be informed that there are several Sorts of it ; some darker, and some much coarser than others ; therefore it should never be bought by Candle-light, unless of a Person you can confide in ; for between the best and the worst there is ten Shillings an Ounce difference ; nay indeed all the Money that an Ounce will cost, because bad **Carmine** will but spoil the Work.

3. Next after **Crimson** comes **Lake**, which is of use in shading and heightening **Carmine**. But it must be observed that in laying of **Carmine** upon a Print, you may touch your Lights only with such a thin teint of it as can scarcely be observed ; laying it on strong just on that Part of the Light which enters upon the Shade, and afterwards laying some **Lake** on the stronger part of the Shade.

Lake is to be had in most Colour-shops ready prepared in Shells for Water-colours.

To make a fine **Lake**, take half a Pound of good **Brasil**, and boiling it in three Pints of **Lye** made with the Ashes of Vine-twigs till half the **Lye** be evaporated, let it settle, and then strain it ; which done, boil it again with fresh **Brasil**, a quarter of a Pound ; **Cochineal**, two Pounds, and **Terra marita** half an Ounce, adding a Pint

of fair Water. Let this boil till it be half evaporated as before; then set it by to settle, and strain it. But when you take it off the Fire, remember to put in half an Ounce of calcined-Alum, reduced to an impalpable Powder, and dissolve it, by stirring it about with a Stick, adding a quarter of a Dram of Arsenic.

In order to give it a Body, reduce two Cuttle-fish-bones to a very fine Powder, and putting in the Powder, let it dry up at Leisure. Then grind it with a good quantity of fair Water in which leave it to steep, and afterwards strain it through a Cloth; and making it up into a few Tablets, or Cakes, set it to dry on a Card, or Paste-board. If you would have this Lake redder, add Lemon-Juice; and if you would make it deeper, add Oil of Tartar.

Another Lake may be made as follows. Boil Shavings or Shearings of Scarlet in a Lye of the Ashes of burnt Tartar: this Lye having the Property of separating the Dye from the Scarlet Shreds. When it has boiled enough, take it off, and putting in Cochineal, powdered Mastic, and Roch-alum, boil the whole again, and while it is quite hot, strain it two or three times through a fine Bag; the first time the Bag must be squeezed with two Sticks from the top to the bottom; then the gross Matter remaining being taken out of the Bag, wash it well. After this pass the Liquor you expressed with the Sticks through the Bag again, and you will find a Paste sticking to the sides of the Bag, which you may either spread

upon a Pafte-board, or divide into fmall Parcels upon Paper, and fet it afide to dry.

To make Lake-columbine, fteep half a Pound of the fineft Brazil-wood of Fernambuca rafped in three Pints of the fineft diftilled Vinegar, for at leaft a Month, the longer the better. After which feeth the whole in Balneo Mariæ, till it boils up three or four times; letting it settle for a Day or two. After this, prepare a fourth part of powdered Alum, and putting it in a clean earthen Pan, ftrain the Liquor upon the Alum, and fo let it remain for a Day. Afterwards, heat the whole again till the Liquor fimmers, and let it settle twenty-four Hours; then reduce two Cuttle-fifh-bones into powder, and having warmed the Liquor, pour it upon them, and ftir it about with a Stick till it be cold, and leave it again for twenty-four Hours before you ftrain it. Remember that it muft be firft ftrained upon the Alum, before it is poured upon the Cuttle-fifh-bone.

4. But a liquid Colour not much inferior to Carmine itfelf may be made of the Rafpings of Brazil-wood: this Colour is the tranfparent Crimfon, and is made as follows. Boil an Ounce of the Rafpings of Brazil-wood, fold at the dry Salter's and at fome Colour-shops, in twelve Ounces of pale ftale Beer and a little Alum, till the Colour of the Liquor is as ftrong as you please, which may be difcovered by dipping a flip of white Paper into it. When this Colour is

as you would have it, pass it when cooled into a Linen-cloth, and bottle it up for use.

And if you would bring this Colour to a Body, take Ox-blood, and dry it till it can be reduced to a powder, which being done, mix it with the Liquor, and it will communicate a Colour to it little inferior to a middling Carmine: some say that the Blood of an Ox or Cow dried will make a good Body for any Colour.

5. *A Crimson Colour, from Mr. Boyle.*

Take the Fruit of the Berry-bearing Spinach, which being pressed, will yield a beautiful red-coloured Juice; boil this, adding a fourth part of Alum to it; then letting it cool, put it up for use.

6. The red Beet-root baked with a little strong Vinegar produces an elegant Red-colour equal to a Tincture of Carmine: then pour it on Alum, and it is fit for use, where Carmine should be used in washing Prints: for it is a fine transparent red.

7. *Another Crimson Colour for washing Prints, &c. is prepared as follows.*

Put thirty or forty Grains of bruised Cochineal into a Gallipot, with as many drops of Tartar-lye as will just wet it, and make it give forth its Colour; then immediately adding to this mixture half a Spoonful of Water, or more, if the Colour be still too deep, you will have a delicate Purple-liquor or Tincture. Then taking a bit

of Alum, scrape very finely with a Knife a small quantity of it into the Tincture, and this will take away the Purple-colour, and make it a delicate Tincture. Strain it through a fine Cloth into a clean Gallipot, and use it as soon as you can, because this is a Colour that will always look exquisitely fine, if it is soon made use of; but will decay if it stands long.

8. *Indian Red.*

Next to these is the Indian Red, which tho' it is a Colour of a Body, yet is useful for a black Ground for Flowers at a distance, when used with Gum-water.

9. There is also an Earth brought from the Isle of Wight, which has been found to mix extremely well with Gum-water, though being of a viscous Nature, it requires less Gum than most other Colours; and as it is naturally fit for use without grinding, and is viscous, so it will no doubt mix with Oil, as well as with Water. There is one thing very extraordinary in this Earth, which is, that if you rub a Deal-board with it, it will make the Board exactly of the Colour of Mahogany-wood, and stain it so deep, and with so much strength, that it is hard to get it out with washing.

C H A P. VII.

Of P U R P L E.

A Fine transparent Purple may be made either redder, or nearer the blue, as you would have it, by boiling four Ounces of rasped Brazil-wood

wood in a Pint of stale Beer, with half an Ounce of Logwood, or Campeachy-wood, till the Liquor is heightened to the Colour you desire, which may be known by dipping a piece of Paper in it.

If you find it too red, put an Ounce of Logwood to the Brasil-wood, which will make it much nearer to the Purple than the former; and by this method you may humour it to any degree of Purple, by putting in either more or less Logwood to the former Composition, and fixing the Colour with Alum.

This will produce such a clear Purple as no Mixture of solid Reds and Blues will do, and the Receipts have been for a long time kept secret. It is said, that the best purple Colour that can be made may be composed between the Carmine and Indigo, to strengthen which, on the red side, you may add Lake between the lighter and darker part; and so Lake when it is used in the same way on the foregoing Purple, or the liquid Crimson, produces a very fine effect.

The Colour may be varied, and made either redder, by putting more Carmine, or bluer, by using more Indigo, which, being mixed on a white Dutch Tile, will shew itself.

A fine Purple colour may be made of the gross Part or Sediment of Lake-columbine, both for Oil and Water-colours, as follows.

Take the Sediment of Lake-columbine which falls to the bottom of the Vial in which is the Bone of the Cuttle-fish. Let it dry, and grind it;

there will be no Lake so fine as this ; and if you mix it with Lake it will give it a better Body, besides more Strength and Vigour.

C H A P. VIII.

Of BLUE.

1. **T**HE Ultramarine-blue is not only the first but the best sort of bright Blue we have, as it gives a Spirit to all painting where Blues are used. The Colour is made from the Lapis Lazuli divested of its Gold, and ground into an impalpable Powder, which is done as follows. Take half a Pound of Lapis Lazuli, and putting it upon red-hot Coals, let it stay there until it is red-hot: then quenching it in very strong Vinegar, and grinding it upon Porphyry, or any such hard Stone, with rectified Brandy to an impalpable Powder, make a Pastil with which the Lapis is to be incorporated: for the making of this Pastil take Bees-wax, Turpentine, Rosin, and Linseed-oil, of each a quarter of a Pound; and melting the whole together over a slow Fire, when it begins to boil, pour it into a glazed Pot: this is the Paste of Ultramarine. Take of this Paste a quantity equal to that of the Lapis, knead them together upon the Marble, and being well incorporated, let them remain for one Night; after which, to bring out the Ultramarine that is in the Paste, pour clear Water upon it, and knead it with your Hands as Paste is kneaded, and the Ultramarine will come out; for the receiving of which,

which, place a porringer or other proper Vessel under your Hands, and let it settle in this Water till you see the Ultramarine at the bottom of it.

If your Colour seems to be clammy or nasty, you may correct it thus : Add thereto Tartar, dissolved in Water, as much as will drown it, and let it rest for one day at least ; then wash it in warm Water, and you will by that means have it correct and well purified. Ultramarine must be chosen of a high Colour and well ground, which may be known by putting it between the Teeth ; for if it feels gritty, it is a Sign that it has not been well ground.

To know whether it be pure and unmixed, put a little of it into a Crucible, and heating it red hot, if the Powder does not change its Colour after Trial, it is certainly pure ; but on the contrary, if there be any Change, or black Specks in it, then it has been adulterated.

2. The Prussian Blue is next to Ultramarine in Beauty, if it be used in Oil, though it is not agreed on whether it will hold so well as the other, particularly as not having the Body of the Ultramarine. The Prussian Blue does not grind well in Water, because there is such an oily Quality in it that it does not mix kindly with Water, and at the best will change, as it is now prepared in the common Way. Attempts have been made to make it a blue Ink, which indeed has held the Colour for a Month or two, but then turned to a muddy yellow. And when you put

your Pencil with Gum-water into a Shell of this Blue, you will find that where the water spreads, the Blue will turn yellowish, till the Body of the Colour is well stirred up; and after all that can be done with this Colour in Water, it will only serve to shade Ultramarine with: but in Oil it may serve very well for the present to supply the Place of Ultramarine.

3. Blue-bice is a Colour of a good brightness, and is the next to the Prussian Blue. It also is a Colour of a good Body, and will flow pretty well in the Pencil, especially if it be well washed, as is directed to be done of the Whites and Minium.

4. Saunders-Blue is also of very good Use, and may serve as a Shade to Ultramarine, or the Blue-bice, where the Shades are not required to be very deep, and is of itself a pleasant Blue, to be laid between the Lights and Shades of such a Flower as is of a Mazarine-blue.

5. The Lacmus or Litmus-blue is another beautiful Colour, and will run in a Pen as free as Ink: being made of Lacmus, or, as some term it, Litmus, which is sold at most Druggists-shops. But as this Colour is never to be met with, prepared for Water colours, we therefore shall give the following Method of preparing it, according to Mrs. *Mariana*. Take an Ounce of Lacmus, and boil it in about a Pint of small Beer-wort, till the Colour is as strong as you would have it; then pour off the Liquor into a

Gallipot,

Gallipot, and let it cool for Use: it will soon become a Jelly, and by Degrees will grow hard.

But this Colour is to be opened again and made liquid by Water, so as to be used in Ink, and will be either paler or darker, as it is made thicker or thinner. This affords a bright Colour and has extraordinary Effects: for it is not only a beautiful, but a holding Colour. This Colour, if it be touched with Aqua-fortis, immediately changes into a fine Crimson, little inferior to Carmine, and sinks quite thro' the Paper, so as not to be got out; so that when it is used as a Blue it is best to keep it from Aqua-fortis, or such strong Acids. It is a good Shade for Ultramarine or Blue-bice, where the strongest Shades should not be extremely deep; and for colouring of Prints it is very good, as it is of a transparent Colour, and goes a great way.

6. Indigo Blue makes the strongest Shade for Blues of any other, and is a soft, warm Colour, when it has been well ground and washed with Gum-water, by means of a Stone and Muller. It is made of what Lightness you please, by putting more Gum-water to it; and by how much the less Gum-water is put to it, the darker it will be. Before you use it upon a Print, it will be proper to try it upon a Dutch Tile; for it runs warmly in the Pencil, and so perhaps may otherwise prove too strong for your Design, which is always to be taken Care of, when a flowing Colour is to be laid over the dark Shade of a Print; which Shade will much heighten its Blackness, and even make it appear quite black.

7. *A fine Blue, from Mr. Boyle.*

Take of the blue Leaves of Rue, and beating them a little in a Stone-mortar with a wooden Pestle, infuse them in Water, Juice and all, for fourteen Days or more, washing them every Day till they are rotten; and at last beat them and the Water together till they become a Pulp, and let them dry in the Sun.

This will produce as good Blue as Indigo, and be much softer; but in order to keep it a long Time, when you beat it the last Time, add a little Powder of Gum-arabic to it, of which you may put more or less, as you would have it more free or tenacious in the working. This is an excellent Blue for shading, has a good Body, and runs warm in the Pencil.

8. *A transparent Blue, from Mr. Boyle, equal to Ultramarine.*

This is a beautiful Blue, the chief Ingredient of which is the Cyanus or blue Cornbottle-flower. This Flower has two Blues in it, one of a pale Colour in the larger outward Leaves, the other of a deeper Colour in the inner Leaves, or Middle of the Flower. Both these will do, being separated from the Buttons and Cases they grow in; but the deep blue Leaves in the Middle produce by much the best Colour; this may be observed by rubbing the Leaves, while they are fresh, so hard upon a piece of good writing Paper, as to press out the Juice, which will yield an excellent Colour that will not fade for several Years. This Part of the Flower is therefore the principal,
and

and what may be depended on, and should be picked from the rest of the Flower-leaves the same Day it was gathered, or as soon afterwards as possibly can be. A good Quantity of these middle-leaves being procured, press out what Juice you can from them, and adding a little Alum to it, you will have a lasting transparent Blue of as bright a standing Colour as can be desired, scarce inferior in Beauty to Ultramarine, and very durable.

As for the outward Flower-leaves, which are much paler, it is not certain that they will answer the End, but some Trials may be made, whereby that may be known also. Let the Flowers be gathered about the Beginning of *June*, or in *July* or *August*, but the Preparation of the Colour, by picking out the middle deep blue Flower-leaves, and pressing out the Juice, must be done with all the Expedition possible, or else they will lose their Perfection.

It is probable that if the Leaves of these blue Cornbottle-flowers were cured in the same manner as Saffron is, they would produce a much greater Body of Colour, from which a Tincture might be drawn with more ease, than if pressed raw or fresh from the Field.

In order to do this such a Kiln must be prepared as is used for curing of Saffron, in which may be made a small Charcoal fire that may communicate a Heat to the Top of the Kiln, which is to be covered with a Hair-cloth; upon this should be laid four or five Sheets of white Paper, such as is used in curing of Saffron: afterwards a Parcel of picked Flowers are to be laid on to the thickness.

ness of two or three Inches, laying them close and flat with a Knife, and sprinkling them with some Gum-water. Then the Cake of Flowers is to be covered with two or three Sheets of Paper and a Board, with a small Weight laid on for a few Minutes; after which the Board is to be taken off and the Cake of Flowers to be turned on the Kiln, taking hold of all the Papers, with both Hands; and when it has been rightly placed, take off the upper Papers and sprinkle the Cake a second Time with some Gum-water; then settling the Cake again with a Knife, let the Papers be laid on as before, with the Board and Weight for a Minute or two; after which let the Papers be turned again and again, till the Cake of Flowers becomes united, and of the Thickness of a Cake of Saffron.

In this Operation you will find the Flowers grow darker and darker every time they are turned, till at length the Cake will look of a deep blue tending to black, from whence a Tincture may be easily drawn; during this Operation great care should be taken that the Fire does not scorch the Flowers, but that it be as constant and gentle as possible, which will be a sure Way to bring the Cake to a good Colour.

But it will not be improper for any Person who shall undertake the Curing of this Colour to consult the Methods of curing Saffron, of which they may be informed either in a Treatise of the Method of curing Saffron written by Mr. Douglas, or in another by Mr. Bradley in his Treatise of Agriculture, Husbandry and Gardening.

C H A P. IX.

Of BLACK.

THE proper Black for Water-colours is Ivory Black, which, if pure and well ground, is of use in Painting in Miniature, but it is not proper for colouring Prints; being too heavy a Colour, and hiding the beautiful Strokes of the Graver, unless done with great Care: however if it be necessary to use black for darkening a Print, rather choose a strong Tincture of good India Ink than the Ivory-black; but to colour Pieces in Miniature; use the Ivory-black prepared as follows:

Grind the Ivory-black well in Gum-water, till you perceive a kind of oily Liquor settle to the Bottom: this Liquor mix with as much of the Ivory-black as you think will be proper to make it flow freely in the Pencil, and it will bear an extraordinary Gloss; and if the Object is shining, such as the Wings of some Beetles, mix with some of it a little white upon a Dutch glazed Tile, till you find it light enough to receive the Shade; and then make another lighter Mixture of the same, which being used on the brighter Part of the Subject will produce the Effect you desired.

C H A P. X.

Of GREENS.

- I. **G**REENS are allowed by all to depend upon the yellow and blue; and any green Colour,

lour, whatever you please, may be made with them. Gamboge is one of the first Yellows, which may be made to produce five or six Greens with Verdigrise, according as the Gamboge is in the greater or lesser Proportion; if it abounds it will make a tolerable Oak-green; and being mixed with a greater Quantity of Verdigrise, it will make a fine Grass-green.

2. But the Yellow which some prefer before all others is made of French-berries (as already described under the Yellows) which is either deeper or fainter as the Liquor they are boiled in is more or less stained with them; if it be very thin, it makes a good Glaze all over the Verdigrise, and as it approaches nearer to Dutch-pink or Gall-stone, commands almost any Colour we want; being agreeably mixed with the transparent Verdigrise; and is still transparent.

3. In like manner, a yellow drawn from the Roots of Barberries and also that drawn from the Roots of the Mulberry-tree will in a great Measure produce the like Effect, being mixed with the transparent Verdigrise. As for the Verdigrise itself, it produces a fine bluish Green, flows easy in the Pencil, and may even serve as an Ink to write with.

4. The Way of preparing the transparent Verdigrise is as follows. Take six Ounces of common Verdigrise, (the distilled Verdigrise not answering this Purpose so well) break it into little
 Pieces,

Pieces, and boil it gently in a Quart of White-wine vinegar, keeping it continually stirring, and, when you perceive it to boil, add a little Tartar broken; and continuing still to stir it till you find the Liquor of such a Colour as you would have it, that is, till it is of a fine transparent green with a bluish Cast, which you may know by dipping in a Bit of white Paper, then pour it through a Linen-cloth into an open Vessel and set it to cool; and when it is quite cold, bottle it up for use. Remember to cork the Bottle close, for being exposed to the Air it will dry; however it may be reduced again by common Water.

This Liquor should be touched upon part of the Lights and Shades of a Print, and the shades afterwards coloured with Sap-green.

In the making of this Green, remember that it be strong enough, because it cannot be strengthened afterwards without the Trouble of boiling it afresh; but may at any time be rendered as faint as you please by mixing common Water with it.

5. Sap-green is a Colour like that of an Oak-leaf, if it be used thin with common Water: for this as well as the former wants no Gum: but if it be used strong it will produce as dark a Green as any. It will be proper to try the Colour first upon a white Dutch tile; and by thinning it with Water you may render it of what strength you please, and may brighten it very much by the Addition of a very little Verdegreafe.

There

There are two ways of making Sap-green, viz. First, take the Flowers of blue Flag-iris or Flower de Luce, and press them while there is any Juice to be got from them; boil this gently in a glazed Pipkin, till it grows thick, adding a little Alum to it, and it will make a very useful and lasting Green.

You must observe this, that in the Boiling of any Juice, &c. of the colours before mentioned, you should always do it in an earthen Pipkin; for if it be boiled in Vessels of Metal, they will oftentimes change it from the Colour intended.

The second way to make a Sap-green, for the washing and illuminating of Prints, is to take the Juice of Buck-thorn-berries, and tho' that Juice simply will yield only a dark Purple of a very base hue, yet either of these Colours will mix with the liquid Verdigrise above mentioned, and will make a delicate Shade for it.

6. There is besides these another Green, which is admired by some Persons, that carries a good Body with it, and a degree of Transparency too, (as it may be made) but, as it is commonly used, is a Colour of a full Body, and fit only for Painting in Miniature. This is made by mixing Dutch Pink with Indigo to what degree of colour you please: but the high Preparation of French-berries with Indigo is much to be preferred to Dutch Pink, especially as this answers all the Intentions of Dutch Pink, and carries a Transparency with it which the Dutch Pink has not.

The Use and Nature of dry COLOURS.

Blue-bice is the most excellent Blue next to Ultramarine, which is too good to wash withal, wherefore we leave it out here, because Blue-bice may do very well instead of it; and indeed both may be left out, since Smalt may be used instead of them: however it will not work so well as Blue-bice, which, without doubt, is too good to use upon all occasions; only when you intend to bestow some Cost and Pains upon your Work: otherwise, you may use no other Blue in your Piece than Blue-verditer, with which you may make a very good Shift without any other Blue, that is, in any ordinary Work.

2. Indigo is a dark Blue that is used principally to Shade with upon other Blues. Indigo and yellow Berries mixed together make a dark Green to shade other Greens in the darkest Places.

3. Blue-verditer is a very bright pleasant Blue, and the easiest to work in Water: it is somewhat inclining to a Green; and, being mixed with yellow Berries, it makes a very good Green: this is the Blue most used.

4. Verdigrise is a good Green but subject to decay: when it is dry upon the Paper it will be of a lighter Colour than it was when first laid on: therefore to preserve it from that Fault, put some Sap-green among it, to dissolve in it, which will make it keep its Colour. There is a distilled Verdigrise to be bought at the Shops that is a

far

far better Green than the other, but it is somewhat dearer, and the other may serve instead of it.

5. Verditer-green is a light Colour seldom used in any thing but in colouring Landskips, and those Places that should appear afar off; and it is good for such a Purpose, because it is somewhat inclining to a Blue, but you may make shift to do any thing well enough without it, for a little Blue-verditer mixed with Copper-green, and a little White make just such another Green.

6. Sap-green is a dark, dirty green, and never used but to shadow other Greens in the darkest Places, or else to lay upon some dark Ground behind a Picture which requires to be coloured with a dark Green: but you may do without this Green, for Indigo and yellow Berries make just such another Colour.

7. Copper-green is an excellent transparent Green, of a shining Nature, if it is thickened in the Sun or upon a gentle Fire; and it is the most used of any Green in Washing, especially in colouring of the Grass, Ground, or Trees, for it is almost Grass-green.

8. Vermilion is the most perfect Scarlet-colour: you need not either grind or wash it; being fine enough itself; only temper it with your Finger in a Gallipot, or Oyster-shell, with Gum-water, and it will be ready to use: if you put a little yellow Berries among it will make the brighter Colour: this is principally used for Garments.

9. Lake is an excellent Crimſon-colour, with which you may ſhade Vermilion, or your yellow Garments, in the darkeſt Places; and being mixed with white, you may make a Sky-colour with it; or a Fleſh-colour, by mixing white and a little red Lead with it; and it is an excellent Colour of itſelf for colouring Garments, or the like.

Indian Lake is the beſt lake, but it is too good to be uſed in waſhing Prints with, unleſs you intend to beſtow great Curioſity upon your Work; for the beſt Sort of ordinary Lake will ſerve well enough for ordinary Uſes; and this alſo will be ſomewhat too coſtly, therefore inſtead thereof you may uſe red Ink thickened upon the Fire, which may ſerve your Purpoſe very well, better even than Lake unleſs it is very good.

Obſerve, that if you would make a light-Sky-colour of your red Ink, or if you would mix it among your Fleſh-colour, you muſt not thicken it; but ſhade your Vermilion rather with Spaniſh brown than thick red Ink, as it may ſerve very well for that purpoſe; but is not altogether ſuch a bright and clear Colour.

10. Red-lead is the neareſt to an Orange-colour, and putting a little yellow berries into ſome of it, will make a perfect Orange-colour: but if you deſire to make a Fleſh-colour of it, you muſt put no yellow in it. This Colour is uſed in colouring Buildings, or Highways, in Landſkips, after being mixed with a little White. Beſides, this is the only bright colour to ſhade Yellow Garments

Garments with, in order to make them look like changeable Taffety. It is good also to colour any light Ground in a Picture, taking on the thin Water of it; and so for several other uses, as you shall see occasion.

11. Yellow Berries are most used in washing of all other Colours: they are bright and transparent, fit for all uses, and will be sufficient without the Use of any other yellow.

12. Saffron is a deep yellow, if you let stand a good while: it is of use principally to shade yellow Berries with instead of red Lead and it is somewhat of a brighter Shadow; but you may make a Shift well enough without the Colour, for red Lead; and yellow Berries make just such another Colour.

13. Masticote is a light yellow just like yellow Berries and white; and therefore you may do well enough without it, only for saving you the Labour to mix your yellow berries with white when you have occasion for a light yellow; then you may make use of it to colour a light Ground in a Picture; in which Case, shadow it with the Water of burnt Umber or red Lead; that is, the thinnest Part of the Colour.

14. Cerus is the best white, if it be good and finely ground: or, for want of it, white Lead picked: either of these will serve well enough for either of them being mingled with another Colour will make it lighter, and the more so in proportion to the quantity of either mixed with it.

15. Spa

15. Spanish-Brown is a dirty brown Colour, of no great use to colour any Garment with, unless it be an old Man's Gown, or to shade Vermillion, or lay upon any dark Ground behind a Picture, or else to shade yellow Berries in the darkest Places, when you want Lake or thin red Ink.

It is the best and brightest Colour, when it is burnt in the fire till it be red-hot; though if you would colour a Hare, Horse, Hog, or the like, you must not burn it, but for other uses it is best when burnt: for instance, to colour any wooden Post, Bodies of Trees, or any thing else of wood, or any dark Ground in a Picture. It is not to be used about any Garments, unless you would colour a Number of old Men's Gowns or Caps, standing together, on Account they must not be all of one Colour: therefore for distinction and Variety's Sake, you may use Umber unburnt for some of them.

16. Printer's black is most used, because it is easiest to be had, and serves very well in washing.

You must observe that you are not to put any Black among your Colours to make them dark, because it will make them dirty: neither should you shade any Colour with black, unless it be Spanish-brown, when you would colour an old Man's Gown or the like, that requires to be done of a sad Colour.

17. Ivory burnt, or instead of that, burnt Bone is the best black, and is thus made; take Ivory, or for want of it, some white Bone, and put

put it into the Fire till it be thoroughly burnt then taking it out, and letting it cool, slit it and taking out the blackest Part of it in the Middle grind it for use.

C H A P. XII.

Directions for making Gum, Alum or other Waters

I. To make GUM-WATER.

TAKE an ounce of fine, white Gum-arabic and half an Ounce of clear white, candied Sugar ; dissolve these in a Quart of fair Water then passing it through a fine Sieve, or a Piece of Muslin, bottle it for use ; and as you have occasion to use it, pour out a little at a Time, remembering to keep it clear ; for if it should prove dirty or foul it will spoil your Colours. By adding a little Coloquintida to the Solution of the Gum, &c. it will prevent the Flies from spoiling your work, if it should chance to be exposed.

Or Gum Water may be made thus. Pour a Quart of pure Spring-water into a Jar-glass, and hanging in it, tied up in a fine woollen Rag, a sufficient Quantity of pure, white Gum-arabic bruised, let it hang till the Gum is dissolved ; then putting your Fingers into the Water, if you find them stick together, as if they were glued, your Water is too strong or full of the Gum ; and therefore you must put more fair Water to it ; and, if you find it too weak, you must put in

it

more Gum; adding, if there is any occasion for it, the Coloquintida as before.

With this Water most of the Colours are to be tempered; and with so much of it, as that being touched when dry the Colour will not come off. It is to be observed that if the colour glistens there is too much Gum in it.

2. To make ALUM-WATER.

Boil four Ounces of Alum in a Pint of fair Water, till the Alum is dissolved; or thus, to two Quarts of Spring or Well-water, put half a Pound of powdered Roch-alum: dissolving it well by boiling; then filtering it through brown Paper, keep it up for use.

Wet your Paper with this Water before you lay on any of your Colours, and it will prevent them from sinking in, and will besides add a Lustre and Beauty to the Colour laid on. But you must take notice, that if the Paper is not good it must be washed over four or five Times with a large Brush or Pencil; remember also that Alum raises standing Colours, and preserves them from fading.

If you design to varnish your Prints after they are coloured, then wash them all over equally with white Starch, before you colour them, and that being dry, lay on your colours.

3. To make LIME-WATER.

Take some unslacked Lime, and covering it an Inch over with fair Water, and so letting it remain

main for twelve Hours, pour off the clear Part of the Water and keep it for use. By washing with this Water you may change your Sap-green into Blue.

4. *To make PEARL-ASHES-WATER.*

Take about half an Ounce of Pearl-ashes and by steeping this Quantity for twelve Hours in Rain or River-water, pour off as much of the Water as is clear, and you will find it of excellent use with Brazil-wood in giving its Colour a enlivening Lustre.

5. *To make SIZE for Water Colours.*

Take half a Pound of the Cuttings of white Gloves, and steeping them in Water for some time, boil them with six Quarts of Water, till it be consumed to one; then strain it through Cloth into an earthen Pan.

If, when the Size has stood till it is cold, feels firm under your Hand, it is sufficiently strong. You may prepare any Colours with the Size, while it is warm, after dissolving it. The principal use of it is to prevent Colours from shining by Candle-light, as they would do if mixed with Gum-water: on this account the Scenes of Play-houses are painted in Size.

